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Optimum Working Conditions for the Eye

C. E. Ferree, Ph.D., and G. Rand, Ph.D.

ACKNOWLEDGED authorities in their field, Drs. Ferree and Rand, summarizing the context of papers prepared on this subject over a period of twenty-five years, present a recapitulation of their most important and practically significant conclusions.

WE HAVE conducted experiments and research for more than twenty-five years on the best working conditions for the eye. Results of these researches have been printed in various papers, more than 75 articles in all. However, we have received so many requests for information on this subject that we have prepared the following brief note stating some of our most important and practically significant results and conclusions.

Working conditions in relation to the eye include both the work and its illumination.

The Illumination

With respect to the illumination of the work, we have found the best conditions to be given by daylight or artificial light closely approximating daylight in color and composition, and as closely as possible in diffuseness.

As to color, it should be noted that many of the so-called artificial daylights are of more harm than benefit to the eye. In the selection of an artificial daylight great care should be taken that the light obtained has a proportion of wave-lengths well balanced with respect to the welfare and comfort of the eye, such as is the case with the filtered light obtained with the two types of glass furnished by the Macbeth Daylighting Company—Daylight and Whiterlite. Not every blue glass can be used to advantage as a filter for Mazda light. On examination with the spectrophotometer

the blue bulb of commerce, for example, shows an excess of light in the green of the spectrum. Also, the glass used in making this bulb is not carefully standardized; that is, it is variable in its filtering properties. Tests made by us for ocular fatigue and discomfort with this lamp gave a poorer result than that of tests made with unfiltered Mazda light. Such tests, so far as we know, have not as yet been made with the various synthetic daylights.

Diffuseness of light is very important to satisfactory visibility. That is, if the light is not well diffused, all points in the object can not be adequately illuminated, and if they are not adequately illuminated they can not be clearly represented in the image that is formed on the retina.

The Intensity of Light

The optimum intensity of light varies widely for different people; also it varies with the kind of light used—the range of toleration for intensity of light being much greater for daylight than for artificial light. If too little light is used, low visibility results, and if too much is used, the excessively harmful effects of glare are experienced.

In our tests on 550 people ranging in age from 10 to 77 years, we have found that around 70 per cent preferred for reading 10-point type, and for similar kinds of work less than 15 foot-candles, and around 50 per cent, less than 12 foot-candles. Forty-eight per cent preferred between 7 and 12 foot-candles inclusive. There is a wide variation of preferred foot-candles for each decade age group and for the group as a whole. A few people prefer a very low intensity, five per cent preferring less than 4.9 foot-candles. In certain of these cases the preferred intensity was as low as 1.5 foot-candles and the upper limit of toleration for comfortable reading as low as 2 foot-candles. A few people prefer high values ranging from 20 to above 50 foot-candles, five per cent of the group preferring more than 36.5 foot-candles. The wide individual variation with respect to amount of light preferred for reading even within a single year of age is a most outstanding and important characteristic of the results obtained—more outstanding and important, for example, than any general trend or group variation.

The following additional points may be briefly noted: (1) From

10 to 20 years a tendency is shown to prefer more light than might be expected in young eyes—more, for example, than is preferred from 20 to 30 years. Above 35 years, particularly between 35 and 50, there is a general tendency to prefer more light for reading than below 35 years. A decided tendency to prefer more light is shown in the group of developing presbyopes (35 to 50 years). This is probably due to the fact that in this group the eyes are changing in their refractive condition more rapidly than at any other period of the working life, so rapidly that it is difficult to keep them continuously properly corrected; and a poorly corrected eye, because of the blurred image that is formed on the retina, requires more light for the discrimination of its detail than a properly corrected eye. Further, the increased amount of light narrows the pupil of the eye, which in turn helps to clear up the image. However, a surprisingly large number of the developing presbyopes preferred very small amounts of light. This is probably due to an undue prevalence of an irritable condition of the eyes caused by the poor refractive correction. Also during this period a great deal of strain is caused by the rapidly growing disturbance in the relationship between accommodation and convergence and by other changes and conditions due to the beginning of old age. Until a toleration or adjustment is acquired for these disturbances, as occurs in more established presbyopia, undue irritability is experienced. Strange as it may seem to some, the group above 50 years of age conforms most closely to the total group as to distribution of amount of light preferred for reading. However, it should be remembered that in this group the eye presumably has its refractive errors well corrected and has acquired an adjustment and toleration for the changes that have taken place during the development of presbyopia.

In connection with the old eye it is a point of interest, too, that while it needs more light as an aid to vision, it receives less benefit to vision through increase of intensity of light than the young or middle-aged eye. In explanation of this the following are some of the possible suggestions: (a) The old eye has a characteristically small and less mobile pupil than the young eye. It therefore does not get as much increase in focusing action through the contraction of the pupil caused by increase of intensity of light as does the

young eye. (b) The retina of the old eye has more lag or inertia in its increase in response to increase of intensity of light than that of the young eye; also its physiological limit of response and the point of diminishing returns are reached at a lower intensity of light. (c) The growing opacity of the media of the old eye causes more and more scatter of light, which interferes with the power to form clear images on the retina. This effect increases with increase of intensity of light. In the early stages of the development of a cataract, for example, it often becomes so extreme as to render the use of the higher intensities of light intolerable and blinding.

(2) There is a decided tendency for those having large pupils to prefer less light and for those having small pupils to prefer more light than the group as a whole, while the preference of those having pupils of medium size is about the same as for the group as a whole. The effect is, however, perhaps less striking than might be expected from the relative amounts of light collected in the image by pupils of different size. The compensating effect of the clearness of imaging given by a small pupil and the unclearness given by a large pupil must be remembered. An example of this is found in the very small number of those having large pupils who preferred less than five foot-candles as compared with those having pupils of medium size.

(3) Within narrow but significant limits, intensity of light sustains an inverse relationship to the strength of reading glass required in the correction of presbyopic eyes. There are two ways of aiding the presbyopic eye to see its object at the required near distance; namely, a correcting glass and intensity of light. The former of these is a major and the latter a minor or auxiliary aid. However, the best selection of either can not be made without reference to the other. The preferred procedure is the selection of the optimum intensity of light and strength of glass. This selection is easy to make when the examiner is provided with the customary trial lenses and a means of varying the intensity of light, such as our Variable Illuminator*; that is, the person examined is in no

* This instrument is described in "Lamp for the Determination and Measurement of the Preferred Intensity of Light for Reading and for Other Work," *Archives of Ophthalmology*, 1934, Vol. 12, pp. 45-59, and "Care and Examination of the Eye in Relation to Lighting," *ibid.*, 1937, Vol. 17, pp. 78-103. It may be obtained from the American Optical Company and E. B. Meyrowitz Surgical Instruments Co.

doubt when the most comfortable and satisfactory combination is attained. If for some reason the intensity of illumination so determined is not available to the person examined, then the selection of strength of glass should be made for the intensity or range of intensities he is compelled to use. Limiting conditions determining the selection of a combination are, on the one hand, the discomfort produced by too high an intensity of illumination and, on the other, the disadvantages of using a stronger correcting glass than is needed, namely, the greater amount of convergence required with the stronger glass, the less favorable relation between accommodation and convergence, and the undue limitation of the range of distance over which the work can be discriminated. It may be noted here too that in the early stages of presbyopia, when the refractive condition is changing rapidly, there is an advantage in using all the light that can be tolerated with comfort in that by so doing the correcting glasses will not have to be changed so frequently.

This study, our latest and one of our most important, was made with a strict observance of all the precautions to guard against possible sources of error that we have learned in more than twenty-five years of experimentation on the effects of lighting on the eye, and the results we believe can be fully trusted. We feel that it is fitting to say this because of the very great interest there is at present in the subject of intensity of light and how best to adapt it to the use of the eye and because space can not be taken here for any description or discussion of our method of working.

Glare

One of the most important factors in lighting is glare. Glare may be from either the work or the source of light. Glare from the work comes at much lower intensities for Mazda light than for daylight. This is due partly to the color of the light and partly to the difference in diffuseness between daylight and the illumination given by artificial lighting devices. Mazda light is yellowish. Yellow light becomes glaring at lower intensities than white light. Higher susceptibility to glare is one of the ways in which the eye shows its intolerance of colored light. Mazda light is poorly diffused as compared with daylight. In light not well diffused the presence of the unscattered beams of light tend unduly to produce glare be-

cause of specular reflection, the tendency taking the form of shine when the specular reflection is even and of sparkle points when it is uneven. Direction of light also is an important factor in glare from the work. The light should be so directed on the work, particularly if it is not well diffused, that none of the light specularly reflected enters the eye. Of the three possible ways of reducing glare from the work—direction of light, diffuseness of light, and the attempt to eliminate specular reflection by polarization (Polaroid glass)—the proper control of direction of light is much the most effective, the most feasible and the least expensive. Glare from the source of light should of course in all cases be eliminated. This can be easily and effectively done by incorporating in the lighting fixture properly constructed shields or glare baffles. These shields or glare baffles are sometimes called louvers. This control can of course best be utilized in local lighting. Diffuseness of light has most to be depended on in general lighting.

Glare from the work is of two kinds, simple and veiling. Simple glare alone will be considered here. Simple glare is a too high brightness due to excessive stimulation of the sensorium by light. When reading from a printed page, it may be recognized as beginning at the intensity at which the brightness of the page becomes uncomfortable. In the experiments noted above on intensity of light this point was determined as well as the preferred amount of light and the lower limit of intensity for comfortable reading. With respect to these determinations there are, as in case of the preferred amount, two points of major interest: the amount of light at which discomfort begins and the wide range of individual differences in this amount, which differences may be taken, roughly at least, as measures of differences in susceptibility to glare. Some indication on both these points is given in the following brief statement of results. A few people have a very low upper limit of intensity for comfortable reading, 2 per cent having less than 5 foot-candles and 13 per cent less than 10 foot-candles; 47 per cent have an upper limit between 10 and 20 foot-candles and 14 per cent more than 40 foot-candles. The concentration of cases between 10 and 20 foot-candles is most pronounced for the 20 to 30 year group (66 per cent) and least for the 40 to 50 year group (31 per cent). From these results it might be considered that those who have an upper

limit of less than 10 foot-candles are more than usually susceptible to glare, while those who have an upper limit of more than 40 foot-candles are less than usually susceptible to glare.

Evenness of Illumination

Evenness of illumination as a factor has not the importance that was once ascribed to it. Within the limits that are apt to occur in a modern lighting situation its importance is not significant. So long as high and glaring brightnesses are eliminated from all parts of the work and from the field of view, and so long as there is enough light on all parts of the work and in the field of view, considerable differences in the illumination may be present without harmful effects on the eye.* Indeed, in the illumination of a room in which a number of people are working, unevenness of illumination is often of advantage inasmuch as it affords an opportunity for grouping or locating the workers with respect to their need and tolerance of intensity of light.

Type and Paper, Color of Ink and Paper, etc.

With respect to the surfacing of the written or printed page, the best results can be obtained with a mat or flat ink on mat paper. This again is a question of specular reflection. Light specularly reflected from an object is not focused into an image on the retina. It is represented merely by a spot of unfocused light. If focused, it would form an image of the source of light, not of the reflecting object. However, in looking at an object we focus for it, not for the source of light. Light diffusely reflected, since it begins its spread at the reflecting surface, alone forms an image of that surface on the retina. We thus see objects only by diffusely reflected light. The light specularly reflected, since it forms an overlay of unfocused light on the image, blurs that image and is, therefore, not an aid but a hindrance to vision.

With respect to color of ink and paper we have found: (1) The best results are given by black ink, and any color as background is inferior to white for the discrimination of details in black. There

* This has been shown in several papers but more particularly in "Some Experiments on the Eye with Pendant Opaque Reflectors Differing in Lining, Dimensions and Design," *Transactions of the Illuminating Engineering Society*, 1917, Vol. 12, pp. 464-487.

is a greater sensation difference between black on white than black on any of the colors and, therefore, greater visibility. This is so plain as to be readily apparent to anyone who makes the comparison on the printed or written page. Also black on white is very comfortable when the paper is free from gloss and the ink as nearly free from gloss as possible. Any feeling against this combination must have arisen through the use of glossy paper or bad lighting conditions; that is, a too high intensity of light or conditions that produce or accentuate specular reflection and glare. Further, as a practical evidence, the attempts that have been made to print newspapers, magazines and books on colored paper have met with a great deal of complaint from the readers. The more persistent use of faintly tinted papers is probably due to the difficulty in producing a satisfactorily mat white paper.

(2) Saturated colors as background for writing or printing in black are inferior to unsaturated colors; that is, the more color there is in the paper the worse is its effect on the welfare and comfort of the eye. There are two reasons for this—the effect on visibility and the effect of the color itself.

(3) The darker shades of color are inferior to the lighter tints.

(4) Of the colors, when all are equalized in saturation and brightness, yellow gives the best results. Next in order of merit is yellow tending towards orange-yellow. However, as already stated, all colors are inferior to white as a background for the discrimination of details in black.

(5) Any toning of the paper towards green is unfavorable in that it increases the tendency to ocular fatigue and discomfort, in spite of the common belief that green is restful to the eye. This belief has no doubt been based on the feeling of relief which comes with viewing distant woods and fields. Here the conditions are not a green light or a green background on which to view details, but the far seeing of objects of low brightness, both of which conditions are restful and comforting to the eye.*

So-called “white” papers may tend almost imperceptibly towards blue or yellow. For use under Mazda light it is sometimes possible in such cases to select a bluish white that will give a better

* The above conclusions refer, of course, to the use of ink and paper under colorless or approximately colorless light.

result than the yellowish white; that is, when the tendency towards blue is just enough to neutralize the excess of yellow in the light. Where scientific tests are not possible, it is a fairly safe practical guide, perhaps, to select the paper that looks the whitest under the light that is to be used.

In the selection of paper, besides color, the following additional factors are of course to be considered: reflection factor, gloss, hardness, and opacity. In the printing of newspapers, telephone directories, catalogues and large books of various kinds, trouble often arises from the use of paper that is too thin and not sufficiently hard and opaque. Hardness, for example, is needed to take a clear impression of the ink, and opacity, to give a good background and to prevent the confusion, so to speak, of seeing through the paper, seeing the print on the other side, etc. Obviously good visibility can not be had under such conditions.

The above conclusions on color and paper are based on tests of visual acuity, speed of visual discrimination, power to sustain clear seeing, and tendency to produce ocular fatigue and discomfort. In addition we have used an instrument devised by us, called a Visibility Comparator. This instrument enables direct numerical comparisons to be made of the discriminability or visibility of printed or typewritten material on different samples of paper, and of different colored illuminations on a given sample of paper.

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Incidence and Distribution of Trachoma in the United States*

Harry S. Gradle, M.D.

PRESENTS a racial and geographical distribution of trachoma. Dr. Gradle estimates a total trachomatous population in the United States of around 60,000, of whom 25,000 are American Indians.

THE trachoma that is found in the United States is distributed roughly as follows:

- (a) Among the American-born Caucasians in endemic form.
- (b) Among the foreign-born immigrants.
- (c) Among the Asiatics and Mexicans who have entered the United States illegally.
- (d) In sporadic form among city dwellers without known source of contact.
- (e) Among the American Indians.

In the various states of the Union, trachoma is not uniformly reportable, and consequently there are no adequate statistics as to the total number of people infected. Herewith is a table compiled by the U. S. Public Health Service, representing the number of cases of trachoma reported in 1937. What stage of the disease is represented here is not known, nor is it known whether or not these are cases seen for the first time. However, analogy may be used to gain a rough idea of totals. In the trachoma clinics of southern Illinois, 3,350 cases of trachoma have been discovered within the past five years. Of that number, 389 were seen for the first time during 1937; in other words, the new cases of that year represent eight and six-tenths per cent (roughly ten per cent) of the total number in that district. Arguing on that basis, the number

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, October 28, 1939.

of cases reported to the United States Public Health Service in 1937 (2,324) represents ten per cent of the total cases of trachoma in the United States, which would give 23,250 cases, apart from the Indians. But in some of the states—even in the hotbed district—trachoma is not reportable, and consequently this figure is at least 10,000 under the actual incidence. So we may assume that there is a minimum of 33,500 cases of trachoma in the non-Indian population.



FIG. 1.—GEOGRAPHIC DISTRIBUTION OF TRACHOMA CASES REPORTED IN 1937.

Based on the 1928 census, which reported 64,000 blind individuals in the United States, Best assigns trachoma as the cause of blindness in two and six-tenths per cent; that is, 1,690 cases. On that basis, if ten per cent of the cases of trachoma develop blindness, it would mean 16,900 cases of trachoma in the United States. But it is a well-known fact that the census was far from complete. And a rather careful estimate seems to show that there are about twice the number of blind as reported there. Consequently, that would bring the number of blind from trachoma up to 3,380. With that number assumed as ten per cent of the total, the non-Indian trachomatous population of the United States would number 33,800.

TABLE I.—NEW CASES OF TRACHOMA REPORTED TO THE PUBLIC HEALTH SERVICE IN 1937 (EXCLUSIVE OF INDIANS)

<i>State</i>	<i>Cases</i>
Massachusetts	21
Connecticut	4
New Jersey	7
Pennsylvania	12
Ohio	435
Illinois	502
Michigan	4
Wisconsin	6
Minnesota	10
Iowa	22
Missouri	476
South Dakota	2
Kansas	1
Maryland	2
Virginia	3
Georgia	2
Florida	1
Tennessee	118
Alabama	11
Mississippi	50
Arkansas	38
Louisiana	8
Oklahoma	106
Montana	0
Idaho	0
Colorado	1
New Mexico	5
Arizona	123
Washington	0
Oregon	4
California	243
North Dakota	27
Kentucky	68
West Virginia	12
Total	2,324

Over a six-months' period, the new cases in the trachoma clinics of southern Illinois were divided as follows:

Stage I	12.9 per cent
Stage II	22.8 per cent
Stage III	27.2 per cent
Stage IV	37.1 per cent

Using the same analogy, the trachoma cases in the United States, apart from the Indians, would be divided approximately as follows:

Stage I	4,322 cases
Stage II	7,538 cases
Stage III	9,012 cases
Stage IV	12,630 cases
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	33,502 cases

An effort was made to show the geographical distribution of the cases of trachoma reported in 1937 by counties. The accompanying spot map is self-explanatory, each dot representing a known case of trachoma, evidently seen for the first time in 1937. Apart from the Indian Service, there is but little organized effort in the United States to locate and treat cases of trachoma. In Missouri, the United States Public Health Service has performed a good job in the survey and treatment of trachoma sufferers. In Illinois, trachoma is confined to the southernmost 17 counties where, for the past five years, we have been operating five full-time out-patient clinics, combined with extensive social service and field scouting. As a result, there are undoubtedly less than a few hundred cases as yet undiscovered. Among the remainder of the states the diagnostic survey work is very haphazard, and consequently the figures here presented cannot be accepted as accurate.

Trachoma occurs endemically in West Virginia, parts of Ohio and Indiana, Kentucky, and the adjacent parts of the Carolinas and Tennessee, Missouri, Oklahoma, and southern Illinois. Here the disease is found among native-born Americans, descended from the white settlers who wended their way westward around 1800. Evidently the virus was scattered during that migration. As these people seldom wandered far from home, the disease must have been spread slowly by contact until the infected areas gradually assumed the club shape shown in the accompanying map. Until a more accurate survey has been made, it is impossible to estimate the total number of infected individuals in this zone.

Foreign-born immigrants were formerly moderately infected with trachoma, particularly those from Russia, Poland, and the Balkans. But as immigration has lessened, and medical inspection has become more rigorous, only a few Trachoma IV cases now enter

the country. Of course, exacerbations occur in the older cases, but they no longer form a focus of infection.

Despite most rigorous precautions, there is a constant trickle of Asiatics and Mexicans filtering across the far-flung borders of the United States. Many of them have Trachoma II or III, and are gradually drifting into the clinics. The menace of infection from these aliens is not great but it constitutes a definite danger, especially along the southwest borders.

Sporadic cases, particularly in the urban population, appear from time to time. Despite all efforts, it is usually impossible to trace the source of infection. These are similar to the instance of an acute trachoma in a London physician, mentioned by MacCallan. Interestingly enough, a fairly high proportion of such cases are unilateral and are apt to remain so. Prompt treatment and proper advice eliminate the sporadic cases as a focus of further infections.

Trachoma among the American Indians presents a different problem. Under the Department of the Interior, there have been established 228 separate reservations for Indians scattered around the United States. The population of the reservations varies from a minimum of 30 to a maximum of 22,250, with a total Indian census of 342,500. The incidence of trachoma varies with each individual reservation, from nothing among the Seminoles to 35 per cent among the Navajos. Curiously enough, adjacent reservations will show widely varying percentages that are entirely unaccountable.

TABLE II.—INCIDENCE OF TRACHOMA AMONG INDIANS BY STATE

	<i>Per Cent</i>	<i>Number</i>
Oklahoma and Kansas.....	Less than 2 per cent	1,975
North Carolina.....	Less than 2 per cent	67
Florida.....	0 per cent	0
Minnesota and Wisconsin.....	4 per cent	1,135
North and South Dakota.....	8 per cent	3,139
Wyoming.....	18 per cent	419
Montana.....	22 per cent	3,595
Oregon and Washington.....	4 per cent	739
Idaho.....	10 per cent	42
California.....	Less than 2 per cent	472
Nevada.....	8 per cent	429
Utah and Colorado.....	12 per cent	364
Arizona.....	18 per cent	8,325
New Mexico.....	12 per cent	4,329
Total.....		25,030

In view of the large number of reservations, it was found advisable to estimate the incidence of trachoma among the Indians on the basis of state populations rather than the individual reservation.

Although many of the Indian tribes are essentially nomadic and wander over vast territories, the excellent work of the Indian Medical Service has resulted in a fairly accurate survey of the incidence of trachoma. The very nomadic nature, together with the characteristic Indian stoicism, makes treatment and eradication an entirely different matter. The majority of the Indians—particularly among the heavily infected tribes—remain for the most part on the reservations. Along the fringes—particularly along the bordering railroads—a low amount of infection in the Caucasian population is to be found. In the southwest, the illegal Mexican immigrant is believed to be more at fault as a carrier than are the Indians.

To sum up the distribution of trachoma in the United States, it may be assumed that there is roughly a minimum of 35,000 cases among the non-Indian peoples, and 25,000 among the Indians. Of the former, approximately 70 per cent are to be found along the old trail made by the early settlers from the Atlantic seaboard to the junction of the Ohio and Mississippi Rivers. The remainder of the cases are scattered indiscriminately around the country. Among the Indians, 60 per cent of the incidence is in the tribes of the southwest. The tribes in the middle west and along the Mississippi River valley are moderately infected (16 per cent), and the rest occurs irregularly in the smaller reservations.

The Ophthalmologist and the Sight-Saving Class Teacher in Conservation of Vision

Edmond L. Cooper, M.D.

EMPHASIZES the relationship of the ophthalmologist and the sight-saving class teacher in handling the problem of the partially-sighted child.

THE skilled services and scientific knowledge of the ophthalmologist must be the foundation on which any program for prevention of blindness is based. However, he cannot and should not stand alone. Outside the medical profession there is an increasing awareness of the problem of safeguarding eyesight. The tragedy of blindness—partial or complete—is no longer solely a personal problem, involving only the patient and his physician. Educators, public health officials, nurses, industrialists, sanitary and illuminating engineers, and social workers all have a rightful place in the attack on this enemy.

It is the relationship, particularly between the ophthalmologist and the sight-saving class teacher, which I wish to emphasize. This relationship should be a close one. Like other ophthalmologists, I like to feel, when I have a case of poor vision in a child, that I will have the closest co-operation from the teacher of that child. I think I should rightfully expect that the teacher will show as great interest in the child's visual welfare, and as close co-operation with me, as is expected of the parents of the child. In return for this co-operation, the teacher should and may expect that the ophthalmologist will provide her with the data necessary to aid her in her work.

Besides co-operating closely with the ophthalmologist, the sight-saving class teacher can make noteworthy contributions to the prevention of blindness—first, by educating the public (by this I mean

chiefly the parents of her pupils) to the importance of thorough and periodic eye examinations; and, second, by referring suspected cases for examination.

Co-operation Between School and Ophthalmologist

Close co-operation between ophthalmologist and teacher is sometimes considerably handicapped by the existence of an even closer relationship between the ophthalmologist and his patient. This patient-physician relationship is sacred to us and, though it sometimes stands in the way of efficient work by the teacher, I think it is justifiable. In these cases the utmost tact must be exercised by the teacher if she is going to accomplish all she would like to do.

By way of illustration we may take the imaginary case of a young girl who is discovered by her school nurse to have poor vision and red and sore eyes. The girl is referred to her family doctor or directly to an ophthalmologist who, in turn, makes a diagnosis of syphilitic interstitial keratitis. He also obtains a positive blood test, let us say, in the mother and in one of the other children in the family. Under proper treatment the child's condition is cured, leaving some corneal scars which reduce the vision in the better eye to 20/70. The child is obviously a candidate for a sight-saving class, and that recommendation is made by the ophthalmologist to the parents. For some reason—perhaps a dislike of having the child in a class distinct from that which other children attend, or perhaps a reluctance to have the incidence of syphilis in the family become known—the parents do nothing about getting the child into a sight-saving class. The school nurse, however, sends to the ophthalmologist a form to be filled out, showing the child's vision with and without correction, and the diagnosis—together with the recommendation of the ophthalmologist. These forms are, of course, necessary. The data obtained from them permit the teacher to classify the child and to work in closer harmony with the ophthalmologist. However, the information requested is, in this case, of a nature which cannot be divulged to the teacher without the consent of the parents. Usually this consent is easily obtained but occasionally the nature of the case renders it more difficult, and such cases require of both teacher and ophthalmologist the utmost discretion.

The teacher should never lose sight of the fact that the personal relationship between doctor and patient has priority over the relationship between herself and the doctor. Of course, all this is true only when the patient is responsible for the bill. In those cases in which the school authorities, for some reason or other, are financially responsible, they are entitled without question to such information. No one will deny that information regarding cases referred by the school social service, and paid for by them, can be divulged.

One of the ways, then, in which a teacher may contribute to prevention of visual deficiency is by education of parents to the importance of examinations and by referring suspected cases to the physician for diagnosis. I think that, outside of actual teaching, this is one of the most important services that a teacher can perform.

There are many parents who, either through ignorance or because of financial conditions or other interests, do not give their children the proper chance. I have had parents bring their children to me and say that the nurse had been requesting them for three or four years to have their child examined; they are just getting around to it. These cases are, in any event, bad enough, but when the examination reveals a progressive myopia, and the realization comes home that three or four years have been wasted, it is tragic indeed. The teacher is handicapped here, of course, but she can do much to prevent such occurrences. A few minutes of personal conversation with a parent are much better than a dozen notes sent home with the child.

The teacher can refer suspected cases for examination, and she should always do so. She should never, under any circumstances, refer to any special ophthalmologist. The patient is entitled to his own choice of physician, and should be allowed to make that choice. Only when the parents of a child state definitely that they know of no one to whom they could go, may the teacher suggest someone, and then it is always wise to suggest two or three names and let the parents make a choice. The teacher always has pupils who have previously been under the care of an ophthalmologist, and she should make every effort to see that the parents do not change doctors without cause. Undoubtedly the poorest results are often seen in patients who persist in running from one doctor to another.

In handling pupils of sight-saving classes, I should emphasize the need of understanding each case and of treating him as an individual, rather than as a member of a handicapped or unsuccessful group. The teacher should try in each case to make her methods suit the patient, rather than try to use one method with all patients.

Necessity for Uniform Recording of Eye Conditions

In order to do her work properly, the teacher must have the information necessary to classify the children. She wants to know what error the child has, and whether or not it will advance. She wants to know the vision both with and without correction; and she wants to know the diagnosis. This information is best obtained by use of a specific form to be filled out for each case. Without such a form the information given the teacher by the ophthalmologist might be incomplete or even so thorough as to be unwieldy. The form used in Detroit requires the ophthalmologist to state the child's vision without correction; the prescription for glasses; the vision with correction; the diagnosis; and the recommendation of the ophthalmologist as to the need for sight-saving class instruction. There is also space for any further remarks the ophthalmologist may wish to make. The form is completed by the name and age of the child, and the date of examination. I venture to say that even these forms are not entirely satisfactory at times because of lack of agreement among ophthalmologists as to how vision shall be recorded, and how diagnosis shall be stated.

The Committee on Statistics of the Blind has long advocated a standard scale for recording vision, by means of which it would be possible for all eye clinics and all ophthalmologists to classify their patients uniformly. For example, some ophthalmologists may record vision as 20/70 or 20/100, while others may use the metric system, recording 6/15 or 6/30. Some record vision of less than 20/200 simply as "less than 20/200." Others more accurately state that the vision is limited to hand movement or to counting fingers, or as "5/200." It can be seen from this that a standard scale is important.

Patients are sometimes hard to classify from these records because of faulty recording of diagnosis. What the teacher is interested in is the cause of the faulty vision in a given case. An at-

tempt should be made to standardize procedures for recording the diagnosis, which may be topographical or etiological. For instance, in a case of detachment of the retina one ophthalmologist may state the cause of blindness to be "ablatio retinae"; another, "detached retina"; and still another, "a blow on the head."

Teacher's Reliance on Ophthalmologist

I should like to spend a few moments discussing what seem to me to be several pertinent points regarding the management of the sight-saving class child by the teacher. In the first place, the teacher should always go to the source of medical care for information regarding the child. The ophthalmologist is the only person qualified to provide her with the necessary data. She should be very careful not to be influenced by the opinions of well-meaning friends. So often a friend will make to the parent of a sight-saving class child a remark, such as, "You know, I think Bobby has a cataract. My cousin's little girl had eyes just like Bobby's, and she had a cataract." The teacher should pay attention to this only to the extent of explaining to the parent that the doctor's diagnosis alone is worthy of attention. Her tact and co-operation here prevent a great deal of misunderstanding, and may often be the means by which delay in the child's progress is prevented.

Secondly, the teacher should never attempt to make a diagnosis herself, or to dispute the diagnosis made by the ophthalmologist. There may be times when the teacher, for some reason or other, becomes suspicious that a child is suffering from this or that disease, but she should make it a point to obtain the diagnosis from the ophthalmologist through the regular channels, and she should never allow herself to doubt its accuracy. In going to the ophthalmologist for information she should always be sure to have the permission of the parents. The teacher should never attempt to classify the child on the basis of her own findings.

Confidence in Medical Diagnosis

The teacher should be careful never to raise any doubt in the minds of children or parents as to the quality of medical care they are receiving. I have several times had children, whom I had previously fitted with glasses, return stating that their school nurse

said the glasses were not right. Nothing is more exasperating to a doctor. But worse than that is the feeling of distrust which is implanted in the minds of the parents. Usually the reason for such a statement on the part of a nurse is that she has tested the child's vision with his glasses on, and has found it to be only 20/40, let us say. Without thinking, she jumps to the conclusion that if the glasses were right, the vision should be 20/20; what she does not think of is that there may be present some condition that prevents the vision from being better than 20/40 with even the best fitted glasses.

Teacher's Influence on Parents

The teacher should do all she can to have the parents follow the physician's orders. Parents are sometimes prone to discontinue treatment without cause. In cases of interstitial keratitis, for example, treatment of the syphilitic condition is necessary for many months after the ocular condition has become quiet, and the teacher should do her utmost to co-operate with the ophthalmologist in seeing that the parents understand this.

Visual Levels for Sight-Saving Class Pupils

Now, as to the visual levels for sight-saving classes: I think there is more or less an agreement as to what these are. In the first place, any pupil—even with 20/20 vision in each eye—is a candidate for a sight-saving class if he is a victim of an eye condition which hard use of the eyes might cause to progress. Many children with progressive myopia have 20/20 vision with glasses, but all should have the advantage of the sight-saving class. I think this is well understood. Secondly, any child whose vision in the better eye is so poor as to handicap him in the work of a regular group should be in a sight-saving class. Usually the limit here is 20/70 in the better eye. In Detroit, the usual limit is 20/70 or worse in the better eye. In Ohio, sight-saving classes enroll children whose vision is between 20/200 and 20/70 in the better eye, together with children suffering from progressive eye diseases. In New York State, the following regulations are in force:

“The eligibility of children to sight-saving classes depends to a great extent upon the consideration of individual cases,

but the following four types make education in the regular grades practically impossible:

- "1. Children having more than 20/200 vision but not possessed of sufficient visual acuity to enable them to read ordinary print or to see letters and figures on the black-board.
- "2. Children with progressive eye difficulties.
- "3. Children with diseases of the eye which seriously affect their vision.
- "4. Children who are able to read ordinary print, but only at the expense of their vision.

"The question may arise as to what specific types of cases may serve as a guide for class selection. If so, the following may serve the purpose:

- "1. Children who cannot read more than 20/70 in the better eye with correction.
- "2. Children who have progressive myopia, even though glasses may bring the vision nearly up to normal.
- "3. Children suffering from eye diseases in which some irritation may be present—provided the approval of the attending physician is given.
- "4. Any child who, in the opinion of the ophthalmologist, would benefit by assignment to the sight-saving class, subject to the acceptance of the educational authorities having charge of such classes."

These are the upper limits. The lower limits—that is, the limit between sight-saving classes and braille classes—is more definite, and brings us to the question of what constitutes blindness.

Definition of Blindness

One of the difficulties in collecting statistics of blindness is the lack of common agreement as to what we mean when we speak of blindness. Sometimes "total blindness" is referred to; sometimes "inability to read with glasses," or "to see enough to carry on an occupation." Of course there are different degrees of blindness. The average individual usually assumes that a blind person is one who does not see anything—or possibly one whose maximum vision barely enables him to see light. It is said that this description

would cover about one-half to two-thirds of the persons usually considered blind.

The Committee on Statistics of the Blind groups the blind into categories as follows:

- "0. Absolute blindness.
- "1. Totally blind, or having light perception only.
- "2. Having 'motion perception' and beginning 'form perception' (up to 5/200).
- "3. Having 'traveling sight' (5/200 to 10/200).
- "4. Having ability to read large headlines (10/200 to 20/200).
- "5. Borderline cases (20/200 or more, but not sufficient for use in an activity for which eyesight is essential).
- "6. Better than 20/200, but having peripheral vision limited to 20° or less in the widest diameter."

Persons in these categories are eligible for braille classes.

We can accept the definitions adopted unanimously at the Congress for the Blind in Königsburg in 1927:

"A child is practically blind and should be educated in a school for the blind whose vision is from 0 to 8/200.

"A child is partially sighted and should be educated in a sight-saving class when he has vision from 8/200 to 20/80, provided the vision is sufficient to make practical further education for a profession or occupation followed by seeing people.

"Supplementing the above, we add that, besides visual acuity, fields, color sense, and near vision must be taken into consideration when defining this class of children."

In one of its pamphlets, the National Society for the Prevention of Blindness indicates who should be placed in sight-saving classes. They advise that, in addition to all children having 20/70 or less vision in the better eye after correction, any child with progressive eye disease, and any child calculated by an ophthalmologist to benefit, should be admitted to a sight-saving class. It is further suggested that each child must be considered as an individual. Roughly, this may be taken as the basis for admission to sight-saving classes.

I should mention another type of "blindness." You have perhaps all heard of the disease "retinitis pigmentosa." In this disease there is a gradual progressive decrease in the size of the visual field, ending finally in so-called tubular vision, comparable to looking through a long tube. Here the central vision may be practically

normal—even 20/20—but for all practical purposes the patient is blind.

Dual Rôle of Sight-Saving Class Teacher

The rôle of the sight-saving class teacher is a full one; in many ways she is a teacher and a social worker combined. She must interpret the doctor's findings and give her pupil an understanding of the condition and its needs, in order that there may be willingness to follow the treatment prescribed. She must interpret the patient's social and personal problems to the doctor, in order that he may judge of their significance and advise in the necessary adjustment. She must inform the doctor of relevant facts, gained from her acquaintance with the family, which may have a bearing on the cause and progress of the eye involvement. She must help secure examination and treatment of other members of the family when the need is apparent or even suspected. She must try to see that patients report for treatment or check-up as directed. She must help in the solution of such economic or social problems as may be interfering with successful treatment.

The Part the Doctor Can Play in the Prevention of Blindness*

J. V. Cassady, M.D.

DESCRIBES the possibilities for state conservation of vision committees in preventing blindness, and presents a suggested program for such societies.

TO DETERMINE what the medical profession is doing in the field of prevention of blindness, I sent a questionnaire to each state medical society secretary, as well as to the American Medical Association, asking about a committee for the conservation of vision, and what special activities it was engaged in. I received many interesting and instructive replies, and one amusing one that I believe you will appreciate:

"Replying to your inquiry as to whether we had developed yet another committee, this time on the conservation of vision, beg to advise that we have not done this.

"As a matter of fact, if we of the medical profession continue to grind out so freely committees in states like ours, with a very limited membership, the committees will soon outnumber the total membership. Several years ago, when we were much younger, 'twas the common yet very truthful remark that the Americans were a race of club-makers and organizers at large, ranging from the nimble but often turbulent Shriners away down to the modest order of Peewees, with hundreds of ladies' organizations between. And in these later years, with the Uplifters and the Rooseveltians, we are not only continuing the clubbing process but have become mildly delirious in the process."

This reply of "No, we have no such committee," is, of course, more lengthy than others I received.

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, October 27, 1939.

There is no national policy so far worked out by organized medicine for conservation of vision. Perhaps this is not possible, but the Indiana doctors believe that a national program sponsored by the American Medical Association, with due regard to local situations, should be planned and put into effect. This is part of the Indiana plan which the American Medical Association adopted at its San Francisco convention. I should like to review briefly the activities of organized medicine in the field of visual conservation that are operating at this time. The activities of Indiana are given in more detail than the others because of my better acquaintance with them, rather than because of their superiority.

The American Medical Association contributes to the conservation of vision program:

1. Through the radio, at least one script a season is devoted to this subject.
2. Through *Hygeia*, articles on vision and eye health are presented at intervals.
3. Through pamphlets and reprints.
4. Through radio talks, prepared for use or sponsored by local medical societies.
5. A new committee is being formed to investigate the incidence and causes of blindness and report at the next meeting.

What State Medical Societies Are Doing

Individual state medical societies which were questioned about committees on the conservation of vision replied as follows:

Arkansas has no such committee.

California and *Colorado* co-operate with the Public Welfare Department in their activity, but have no committee.

Delaware plans such a committee this fall.

Georgia has a committee which has confined its activities so far to work on the cross-eyed child.

Hawaii co-operates with the Territorial Bureau of Sight Conservation.

Illinois has no committee, but a very active state society for the prevention of blindness.

Indiana has adopted a statewide program of preventive medicine which includes conservation of vision.

Iowa has no such committee.

Kansas co-operates with the Public Welfare Department in

a prevention of blindness campaign, has sponsored additional sight-saving classes, and distributes pamphlets for conservation of vision.

Kentucky has a committee co-operating with the director of the Trachoma Bureau and intends enlarging its prevention of blindness program.

Louisiana and *Maine* have no such committee, but believe it would be well to have one.

Maryland's medical society co-operates with the Maryland Society for the Prevention of Blindness, but has no separate committee.

Massachusetts and *Michigan* have no committees for the conservation of vision.

Minnesota has a committee working with the State Board of Control, making a survey of the causes of blindness.

Mississippi has none.

Missouri and *Nebraska* have had a committee on the conservation of vision since 1938.

New Hampshire has such a committee, which co-operates with the Blind Assistance Division of the Public Welfare Department.

New Jersey just established a committee.

Nevada, *North Carolina*, and *North Dakota* have no such committee.

Ohio is planning a more active movement toward the conservation of vision in the near future.

Oklahoma has a committee, but so far has not outlined its program.

Pennsylvania has such a committee which sponsors educational and local programs, as well as carrying on a campaign to have ophthalmologists certified by the Board. Directional interest of local county societies is maintained by the state organization.

The *Philippine Islands*, *Rhode Island*, and *South Dakota* have no committee of the medical society for visual conservation.

Tennessee has one co-operating with the health department, sponsoring sight conservation classes, and working through physicians and hospitals for a sight restoration program.

Texas, *Utah*, *Virginia*, *West Virginia*, *Wyoming*, and *Washington* state medical societies have no such committee.

Wisconsin has a committee on visual defects. Visual reading tests are done for all county and city school children. An attempt is being made to set up a program of visual examinations of all industrial workers similar to the general medical examination.

In Indiana, the State Medical *Journal* is used as a central forum for an educational program for all county organizations, with certain topics emphasized each month. The county society uses this topic for its month's program, as well as using speakers at service clubs, parent-teacher and other lay organizations for education of the public. For example, one month is devoted to cancer; one to tuberculosis; one to conservation of vision. With county medical society programs, State *Journal* articles and educational propaganda used, this subject is thoroughly presented. Each county society has a local committee on conservation of vision, picked by the local society, and interest and activity of this local committee is directed by the state organization.

Indiana already has prenatal, premarital blood Wassermann and anti-fireworks laws, as well as in many places ordinances prohibiting air rifles. The ophthalmia neonatorum law is too lax—15 per cent of Indiana's blind school children are blind from ophthalmia neonatorum. The Indiana State Medical Society has requested the board of health to enforce the present law, and to urge the passage of a more comprehensive law at the next legislature. Trachoma accounts for ten per cent of the blind among the blind pensioners of Indiana. The public welfare department is taking an active part in its treatment. The medical society is asking the board of health to take an active part in its prevention and control. In addition, each county medical society committee will assist and assume leadership in the community for its management.

The press, radio, and exhibits for the public at state fair and medical society meetings were used in an educational campaign for the conservation of vision. Indiana's conservation of vision committee has been set up on a five-year basis, staggered over this period to insure a continuity of policy.

As is easily seen from the above outline of different medical society activities, there is no uniformity in the programs, and efforts are too widely scattered. Visual defects, eye diseases, and blindness are everywhere, and the problems for the prevention of blindness are similar in various localities. A united effort should be made by organized medicine to work out a national program for the prevention of blindness applicable to local conditions. The medical profession in the past has been mainly interested in the treatment

and alleviation of disease; but with its voluminous literature, built from years of experience in observation and management of illnesses, it is time to embark upon a broad, extensive program of disease prevention.

Physicians individually practice preventive medicine to some degree. Diphtheria, smallpox, typhoid, malaria, puerperal sepsis, and other infectious diseases have been forestalled, and their favorable morbidity and mortality statistics can be largely attributed to the activity of the medical profession. These diseases were of community interest and so prevalent that the public, health departments, and the medical profession were all interested in them.

Other diseases, such as venereal diseases, arthritis, tuberculosis, cancer, and heart disease, which have had specialists for their study and treatment, have needed the stimulation of some lay organization for their prevention. In eye diseases, although measures for controlling glaucoma, trachoma, ophthalmia neonatorum, infectious diseases, squint, tumors, and many other serious eye diseases have been developed by oculists, physicians and laboratory workers, it has taken the stimulus derived from such an organization as the National Society for the Prevention of Blindness to correlate measures that may be used for their universal prevention. These, like other diseases, are not aware of state boundaries. A national policy of anticipation of eye disease, with reduction of eye hazards on a national scale, is necessary for prevention of blindness. This Society can do this more effectively than any other. I want to take this opportunity to pay tribute to the officers and personnel, as well as to the founders, directors, and members of the National Society for their splendid co-operation, directional assistance, and aid to Indiana's and other similar state medical societies' programs.

Sight Conservation Program for the Medical Profession

The educational program should be directed toward medical schools, universities, public instruction departments, school nurses, teachers colleges, social workers, and industry, as well as to physicians, so that they may constantly keep in mind measures for the prevention of blindness. After the professional groups are mindful

of blindness, the public should be educated to demand a 50 to 60 per cent reduction in its incidence.

Adequate facilities for providing service to schools, industries, and the public, so that no one be denied medical care, are necessary. Trachoma clinics; facilities for supplying glasses; sight-saving classes; examination of school children and of industrial workers; facilities for adequately treating ophthalmia neonatorum and syphilis; goggles; safety devices; good lighting in homes, schools, and industry; anti-fireworks legislation; prenatal and premarital blood Wassermann laws; clinics, hospitals, and physicians trained to recognize, treat eyes, and conserve vision; all these are parts of the service program.

Prevention of Blindness Activities for a Medical Organization

The following outline is, in rough form, the type of program that probably should be adopted by the local, state, or national medical organization in a prevention of blindness campaign:

1. Hereditary and Congenital Eye Defects
 - a. Advocating premarital and prenatal blood Wassermann tests.
 - b. Urging treatment of syphilis, especially during prenatal period.
 - c. Educating public on need for adequate prenatal care, diet, sufficient vitamins, sunlight, fresh air, good hygiene, and regular examination during the prenatal period.
 - d. Informing the public that retino-blastoma, hereditary myopia, and congenital cataracts are among the conditions transmissible from parent to child.
2. Conjunctivitis of the Newborn
 - a. Promoting a comprehensive ophthalmia neonatorum control program, bearing in mind the following:
 1. Prophylactic should be approved by the board of health—usually one per cent silver nitrate.
 2. All cases should be reported to the board of health.
 3. Board of health should be responsible for treatment.
 4. The facilities should be provided (oculists and nurses) to treat conjunctivitis of the newborn.
 5. All cases of conjunctivitis of the newborn should be considered as gonorrheal until proved otherwise.

3. Eyes of the Preschool Child

- a. Promoting accident prevention through public education and encouraging anti-fireworks, anti-slingshot, and anti-BB gun ordinances.
- b. Advocating the early treatment of squint, through public education and through providing treatment facilities.
- c. Advocating inclusion of a vision examination in general physical examinations by pediatricians, family physicians, dispensaries, clinics, hospitals, and in summer round-ups of preschool children.
- d. Educating the public on the relationship between general infectious diseases and diseases of the eye.

4. School Vision

- a. Advocating vision testing by school nurses, school physicians, oculists, and teachers, and arranging for provision of glasses, treatment, or more complete examinations by oculists.
- b. Urging the use of sight-saving classes for children whose corrected vision is too poor for attendance in regular classes.
- c. Calling attention to need for adequate lighting—15 foot-candle illumination on each desk.*

5. Conservation of Vision in Industry

- a. Co-operating in safety campaign for large and small industries, including garages.
- b. Advocating the use of safety devices and goggles in occupations with hazards to the eye.
- c. Advocating vision testing and eye examination for workers upon application, and at periodic intervals, by oculists.
- d. Promoting the use of adequate lighting in industry.
- e. Providing information on the necessity for preventing spread of infectious diseases in industry; need for hygienic working conditions, and for isolation of infectious diseases; also the need for providing facilities for treatment of infectious diseases.

6. Trachoma or Other Local Eye Conditions

- a. Educating the public and professional groups on trachoma.

* *American Recommended Practice of School Lighting*. New York: Illuminating Engineering Society and American Institute of Architects, 1938.

- b. Urging of adequate facilities for treatment of private and indigent patients, and obtaining the co-operation of the health department.
7. Eyesight Conservation in Private Schools and Colleges
- a. Advocating pre-entrance and periodic eye examination by oculists.
 - b. Promoting good hygiene and adequate lighting in the schools.
 - c. Promoting distribution of educational material on eye health and vision conservation for the pupils.
 - d. Advocating the provision of reading clinics where necessary.
8. Sight Conservation in Relation to General Diseases and Diseases of the Eye
- a. Educating the public and arousing the interest of professional groups in the possible eye complications of hypertension (high blood pressure), diabetes, nephritis (Bright's disease), and focal infections.
 - b. Educating the public and arousing the interest of professional groups in the nature and need for treatment of such conditions of the eye as glaucoma, malignancies, eye injuries, cataracts, and corneal ulcers.
9. Co-operation of Medical Organization with Other Agencies
- Following are some of the local groups with which the medical profession can co-operate in maintaining a thorough sight conservation program:
- a. Public health workers.
 - b. Public welfare workers.
 - c. Public schools.
 - d. Physicians, hospitals, clinics and dispensaries.
 - e. Service groups.
 - f. Parent-teacher groups.
 - g. Nursing groups.
 - h. Social service workers.
 - i. Newspaper, radio, and other public information groups.

Need for Medical Profession to Assume Its Responsibility

If the incentive and request for a prevention of blindness campaign originates in the medical organization itself, it will be much more likely to be effective in securing the co-operation of physicians than if a social, public health, or welfare organization institutes it.

The general practitioner can do more to save vision than any organized small group, like oculists, school nurses, public welfare, social, or public health workers. By the time these patients reach the welfare department, they are like the cancer patient who comes to the cancer clinic—their condition is beyond help. The family doctor who thinks of conservation of vision sees early ophthalmia neonatorum, squint, eye accidents, syphilis, infectious diseases, glaucoma, trachoma, and other diseases that take the largest toll of vision. He can be the closest family adviser in matters of visual conservation.

Such a program in a broad way is applicable to any organization. Whether it is administered by the public health, public welfare, medical organization, or lay society, it must be all-inclusive to meet all of the problems of the prevention of blindness in all schools, all industry, all homes, and in public. The measures to carry out this program should have the co-operation of organized medicine to obtain the education, interest, and service of the general physician, if they are to reach the earliest eye diseases and hazards before they are serious enough to appear as blindness.

What State Supervising Ophthalmologists are Doing in the Prevention of Blindness*

V. M. Hicks, M.D.

DESCRIBES major prevention of blindness problems as related to local conditions in South Carolina, and outlines the activities of the state supervising ophthalmologist.

IN PLANNING this paper I have tried to present something on the following points: the situation in North Carolina; some information from other states; my work as consulting ophthalmologist; some of the reasons why our state agency for the blind is the logical agency to sponsor our prevention work; major problems which have presented themselves to this agency and how we are solving some of them.

We have in North Carolina a population of approximately 3,200,000 people. Estimating, 1,450,497 of these have some degree of eye defects. According to the conclusions drawn in the President's study,† at least one-third of this group, or 483,489, would be classed as indigent. There are in North Carolina approximately 99,000 school children needing eye care, and of this number approximately 33,000 are indigent. We have found 6,080 blind in our state, 4,000 of whom are unnecessarily blind from causes that could have been prevented.

Before the passage of the Federal Social Security Act our state legislature passed an act creating the North Carolina State Commission for the Blind, under the sponsorship of lay groups interested in the problems of the blind and prevention of blindness.

* Presented at Annual Conference of The National Society for the Prevention of Blindness, New York City, October 27, 1939.

† *Report on Economic Conditions of the South*, National Emergency Council, July 25, 1938. Published by the United States Information Service, Washington, D. C.

This Commission began functioning late in 1935, but since the program was sponsored by lay groups it was unfortunately launched before the physicians or even the ophthalmologists generally knew of the existence of the Commission. Because of this lack of knowledge and understanding, a strong wave of antagonism developed among the eye specialists, and without any thorough investigation, the whole program was privately condemned on the grounds that it was state medicine and they would have none of it. This situation has made difficult the first few years' work of the Commission. Persistent contacts and gradual persuasion have been necessary to get any type of co-operation. Then came the Social Security Act, and the economic needs of the blind were so great that the examinations were rushed through in order to permit as many as possible to receive the relief funds available. The result was unsatisfactory records which do not give the information needed for follow-up work and for an understanding of the real causes of blindness.

Now in my state it seems that we have turned the corner and are beginning the development of a far-reaching program. Most of the ophthalmologists now understand that the real function of the Commission in the field of prevention of blindness is to help them give their professional aid to the indigent of their community and to help educate the whole community to the importance of proper eye care. This realization gives the specialist an entirely different point of view. It places him at the head of the program in his community. I might mention here two policies which the Commission has adhered to from the beginning and which have proved very beneficial in convincing the ophthalmologists that the Commission is concerned with rendering a real service to the indigent and that it is using its efforts to give its best to those unfortunate people whom it was created to serve, namely: the Commission confines its eye care program entirely to the medical profession, and it has set up a high standard for its operative work in that men doing its operations must be certified by the American Board of Ophthalmology and must also be successful surgeons.

It now seems in our section and over the country as a whole that the program for aid to the blind and the prevention of blindness has existed for a sufficient period for us to take stock of it. I presume that is the main reason why we are here tonight.

When I accepted the invitation to appear on this program, I wrote the consulting ophthalmologists in the states participating in the Social Security programs, requesting information on various points. Not all of them replied. When I read the replies, intending to tabulate them, I realized that it would be impossible because of the total lack of uniformity between the states. Some have whole-time ophthalmologists and others work entirely at the desk, giving very little time. The annual compensation ranges from several thousand dollars to nothing. The duties range from having complete responsibility for the medical care program in the state to simply countersigning the medical reports. The reports indicate, and it is my opinion, that the consulting ophthalmologist should be a private practitioner who has a personal social interest in the state work to the point where he is willing to give a portion of his time as consultant and adviser and, at times, be an actual worker for the Commission in the development of its state program. The compensation should depend on the ability of each Commission to pay. There has been in the past a great deal of confusion as to what the compensation to private practicing ophthalmologists should be. It is my opinion that this question will be continuously pushed farther into the background as the local ophthalmologist is made to appreciate the fact that the work is among his people who are indigent and who need his help.

As consulting ophthalmologist for the Commission, I advise with the executive secretary on medical policies; assist in the drafting of and approve medical forms; perform the eye operations for the Commission in the eastern district of our state; hold an eye clinic one day each week for the indigent persons in our section sent to me by the Commission; examine and countersign the medical reports for blind persons who are to receive Social Security aid; advise with and give instructions in eye care to the medical social worker of the Commission; and serve as a member of the recently appointed medical advisory committee to the Commission.

In developing our program for the prevention of blindness and for the provision of medical care for the visually handicapped indigent, we in North Carolina have felt that a state agency for the blind is the logical agency to direct this work, co-operating with other agencies directly concerned, such as boards of health, educa-

tion, labor and welfare. Our opinion is based on a number of factors—a few of which I will mention briefly.

First, when the program of eye care is lumped in with other general medical care programs, it is usually saved for the last and never reached. "Eye care" thus becomes a sort of "red-headed stepchild" unless it can be made the chief medical work done by one agency, such as a state agency for the blind. This is true largely because it is so difficult to arouse public concern and understanding of defective vision since it is usually not obvious or contagious and is often gradual and does not immediately disable to a large degree. Also the profession of ophthalmology is so highly technical that its importance and possibilities are usually understood only within its own special professional group.

Second, an agency for the blind is far more conscious of the problems presented by defective vision and can closely co-ordinate and correlate its work in the field of prevention with training, rehabilitation and its other service programs. The same lay groups interested in the other phases of its work can become the nucleus for a public education program in prevention of blindness.

Third, prevention of blindness requires not only medical service but case work service as well, and an agency for the blind which has on its staff social workers also trained in eye care is in a much better position than any other agency to work with the medical profession in handling the problems involved. Case work treatment must often precede or follow the medical care given by the specialist; for example, a patient is often unwilling to risk an operation, even if the prognosis is good, or the family may have superstitions or religious scruples which must be overcome. Even in the case of refractions there is often the problem of personal adjustment; for example, the sensitive girl in her teens may refuse to wear unattractive heavy lenses which may be necessary. Other recommendations of the physician regarding diet, the removal of possible sources of infection and the securing of funds from lay groups to make possible the carrying out of these recommendations are functions of a case work agency.

Fourth, an agency for the blind has more accurate monetary costs regarding the results of defective vision which may be presented to legislative or other groups and it is the agency most

vitally concerned with prevention, because through prevention it is saved the expense of a pension, placement in a sheltered workshop, etc. Also an agency for the blind, because of its experiences, realizes more completely the social, psychological and other costs to the individual suffering from defective vision.

Fifth, in a decentralized statewide program involving medical care, it is necessary that opinions of local ophthalmologists be given much consideration and, since an agency for the blind is a non-medical group, it can have a program sufficiently flexible to meet this need.

After having accepted the responsibility of an eye care program as its major activity, the Commission found itself faced with the following immediate problems:

1. The problem of finding the visually handicapped in North Carolina and of securing a diagnosis by a qualified ophthalmologist.
2. The problem of limiting eye surgery to the best qualified men.
3. Lack of funds and staff. For the first two years, the Commission had an appropriation of only \$25,000 for its program of prevention, rehabilitation, home teaching and other services in the one hundred counties of our state. This appropriation has now been increased to \$31,044.
4. Lack of knowledge on the part of the medical profession regarding aims and activities of the Commission in the field of prevention of blindness and a feeling on the part of many of the doctors that this was just another state agency trying to go into state medicine.
5. The need for limiting the diagnosis and care of the visually handicapped to ophthalmologists.
6. The absence of a definite standard for ophthalmology within the medical profession.
7. The large number of counties in the state having no ophthalmologists.
8. The lack of or inadequate preliminary eye examinations given school children.
9. How to formulate plans acceptable to the ophthalmologists which, by establishing a continuing clinic, would service the indigent persons in the state needing eye care.
10. How to convince the ophthalmologists of the importance of

making an eye record on the visually handicapped indigent persons and sending it to the State Commission for the Blind for follow-up work and for its statistical value in public education and in planning future eye care programs.

A satisfactory solution has been found to a number of these problems but we are in the process of solving many of them and of meeting the new difficulties which arise in the solving of any problem.

Through the assistance of WPA we were able to make in our State of North Carolina a comparatively thorough survey of the population to determine the number of blind. The surveyors found 6,080 came under the classification of blindness. Of this number, 2,699 have been examined by an ophthalmologist; 559 of this 2,699 were recommended for operation, and 104 for treatment. Our immediate problem was to provide surgical service to as many of this group as possible. Since the program had found disapproval with the medical profession and the majority of ophthalmologists were not co-operating and since the best convalescent care could be provided for the blind client in a central preventorium, such a preventorium was established at the State School for the Blind Infirmary and more than 100 operations were performed the first summer with most gratifying results. Now, arrangements are made for operations to be performed in five general hospitals in the state, each servicing a particular section and the operating being done by a well-qualified surgeon. Since its creation, the Commission has arranged for more than 10,000 indigent persons to be examined, of whom more than 400 have been operated upon, and 4,670 refracted. With this assistance, more than 500 have been removed from the classification of blindness.

In the beginning years of the Commission's work it used whatever ophthalmologists would co-operate with it in holding eye clinics for indigent school children in various sections of the state. It is now developing a much more constructive program which will provide continuing community eye clinics and which will include the instruction of all teachers in the giving of preliminary eye examinations so that every school child may be examined and those appearing to have defective vision examined by the local or nearest ophthalmologist. Those children of indigent parents will be sent to

the eye clinic and those whose parents are able to provide eye care will be sent to the private practitioner. Here the social worker can do a splendid service, because we all realize the danger of pauperizing self-supporting citizens. Men holding these clinics are to be men who are confidentially approved by an advisory medical committee.

In meeting its problem of lack of funds and staff the Commission has secured the co-operation of county health, welfare and school officials and has gotten civic and service groups to raise money to help finance the work. The Commission has now secured the service of a voluntary advisory committee composed of five leading ophthalmologists from the various sections of the state. This group will consider all medical policies and programs and will make its recommendations to the Commission. Those counties having no ophthalmologist will be serviced on a district basis. There will be a definite public education program carried out in connection with the establishment of the continuing eye clinics and in connection with the preliminary examination of children by the teacher.

In the future, information regarding the Commission's program will be given regularly to the medical profession in order that it may be kept informed regarding the objectives and accomplishments of the program.

The Commission plans to make a survey of those counties having the highest percentage of blindness, having examined insofar as possible all persons suffering from defective vision within the county.

As I have said before, the Commission uses only ophthalmologists in its medical care program and, for its operations, it uses men qualified by the American Board of Ophthalmology who have demonstrated without question their ability as surgeons, and it is planning to use in its general program of eye clinics those eye specialists given confidential approval by the Advisory Medical Committee. We are hoping to get some federal money for our prevention of blindness work in North Carolina and we are hoping to secure increased funds from civic and service groups and our state legislature, as well as to secure some funds from local governing bodies. Our program is young in North Carolina. We have made many mistakes and we will make others in the future, but we feel that we are building on firmer foundations and that, in the

future, we will be able to render more adequate service to those needy persons who are visually handicapped and whom the program exists to serve.

It can be justly charged that this paper fails to adhere closely to its title and this brings out perhaps the most important point. A consulting ophthalmologist will do his best work only when he is thoroughly familiar with the program of the national and state organization and is giving this program his enthusiastic support. The lay and social workers connected with this great effort must recognize that the actual professional work must be done by the best-trained medical men in the state. The entire program places all groups on common ground and this great aim to help the helpless will create a co-operative effort that cannot fail.

Personal and Group Responsibility in Prevention of Blindness

C. E. Rice, M. D.

AN appeal for acknowledgment of individual responsibility—the most constructive force in any public health endeavor—by the citizen, the physician, the parent, and public, private, and professional agencies engaged in sight conservation.

THE thought I wish to dwell on is that personal responsibility and personal initiative are the most constructive forces in any public health endeavor. It is certainly true in the specialized public health field of sight conservation.

There may be a feeling in some quarters that government can take the place of personal responsibility or personal initiative. This is a serious mistake. What government can do, however, or what private agencies can help do, is, through proper organization, planning, and effort, make personal responsibility a truly effective force.

To the extent that the average citizen lacks the will or the knowledge of what to do to conserve his own sight or the sight of those for whom he is responsible—to that extent the best public health machinery in the world will be ineffective.

In this area of personal responsibility for conserving sight and preventing blindness, there are six outstanding groups of key persons: the practicing physician; the individual citizen; the citizen as a parent; public agencies; private agencies; and professional agencies.

The first three of these groups have close, inescapable personal and moral responsibility for preventing blindness. In fact they are the only persons who do actually prevent blindness. They are the

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York City, October 27, 1939.

ones in the front line trenches of this warfare. If they fail at any point, there is disaster.

Responsibility of the Physician

We must divide the physicians into two groups: (1) the general practitioner, and (2) the eye physician.

Both have definite responsibility. The general practitioner has three duties, the performance of which will prevent much blindness. These three duties are:

1. An adequate search for and treatment of syphilis as it occurs in his practice, especially in the prospective mother.
2. The proper use of effective prophylaxis in the eyes of the newborn.
3. Enough knowledge of eye conditions to know when to refer a case to an ophthalmologist.

The proper performance of these three duties would probably prevent 40 per cent of blindness.

Under the urging of various private agencies, the government has stepped into the picture here with organization that is very helpful and effective in preventing blindness from some of these conditions, provided the physician makes use of such organization.

Some of the organization that I speak of is the free distribution of silver nitrate by many state health departments, the free serological test, and the distribution of the necessary drugs for the treatment of syphilis by the same agency. Then one should mention the reporting of cases of ophthalmia neonatorum with proper follow-up which is required in many states. This is effective practical organization by the government to help make effective the personal responsibility of the general practitioner.

Reporting of ophthalmia neonatorum is not so good as it should be. There is considerable misunderstanding as to who is responsible for reporting. The eye physician when starting treatment of such a case probably thinks the general practitioner or the midwife has already reported it, so neglects to do so himself. Follow-up investigation is important in real cases of ophthalmia neonatorum.

What about the personal responsibilities of the eye physician in this field other than to treat individual cases referred to him?

It would seem that there is a definite contribution to be made here in stimulating and aiding in the continuing education of the general practitioner in the eye field. Many eye physicians will state that when papers on such subjects appear in the general program of county and state medical societies, there is hardly any attendance of general practitioners. In reply to this it can probably be said that not enough thought has been given to what would appeal to such men. If an eye physician insists on speaking about his method of cataract extraction before a group of the general profession, then he should be willing to spend some money on a medium that will not only convey his ideas but will hold the attention of such a crowd. However, there are other more interesting subjects than cataract extraction that can be presented to the general practitioner.

The eye physicians have the responsibility of helping educate the lay public on eye hygiene in terms that the public can somewhat comprehend. This effort might be fitted into the general subject of lay education now being undertaken by so many state medical societies. Here again some time and money might profitably be spent putting into appropriate, understandable language short speeches on some of the more common eye conditions. It would seem worthwhile to try and assemble a cross section of the questions asked at such lay meetings. Such questions might well serve as a guide to what subjects need emphasizing and might also serve as a guide to radio programs.

Over 4,000,000 people seek an eye examination or refraction in this country every year. The thought cannot be side-stepped that there are many people in the United States who are influenced in their decisions purely by economic considerations as to whether to go to an ophthalmologist for such services or to go somewhere else. In states with a proper responsible private or public agency there is a field here which might be explored which is concerned with the professional responsibility for making an organized effort to make more available through a reduction in professional fees ophthalmological services for citizens below a certain income level.

Responsibility of the Individual Citizen

The next big area is the personal responsibility and personal initiative of the individual citizen. This is the responsibility which the citizen has for conserving his own sight and is so dependent on knowledge. However, his resulting action or lack of action when he realizes that something is wrong may be motivated by economic considerations.

The individual content of knowledge concerning eye hygiene and eye physiology will differ as individual mental endowments differ and will depend very much on proper exposure to competent teaching. Exposure to such teaching should occur in the elementary school, the high school, and certainly it should be available in the teachers' colleges. There is room for close co-operation here between responsible private and public agencies and the educational authorities of the state.

Responsibility of the Citizen as a Parent

The individual as a parent has a definite personal responsibility for the proper care of his children. The teaching to which the parent has been exposed in childhood will be an important factor here. His course of action will, of course, often be decided by the advice he receives from his physician, from the public health worker, and from his neighbor. Facilities for adult education should be recognized as important for taking up subjects that could not possibly have been of interest in education of youth. The parent who takes time out to train his son how properly to use a firearm is certainly doing prevention of blindness work. The parent-teachers' association that gives consideration to the subject of what household instruments should be allowed in the hands of young children, what toys are dangerous, is doing prevention of blindness.

Organization in this area may take the shape of efforts to influence the program content of parent-teacher organizations and efforts to influence legislation concerned with the sale of explosives for holiday use.

Public and Private Agency Responsibility

We have considered those on whom rests the great personal and moral responsibility to do the right thing at the right time. Be-

hind these most responsible persons are the public health personnel in the county and the teachers in the public schools. These people have a great indirect responsibility in influencing those at the front. Further back in the picture are the co-ordinating agencies, those specialized public statewide agencies such as the welfare and the public health departments. They have joint responsibility in this area of prevention of blindness, not only in making proper use of each other but in jointly influencing and aiding those nearer the scene of action, those who actually have to put into practice those principles of prevention.

Standing to one side are the state and national voluntary agencies, the agencies that are composed of the interested citizens of the state, the agencies which have no official responsibilities. Their main functions, as I see them, are:

1. To fill the gaps left by the official agencies.
2. To suggest and aid in new operating departures.
3. To watch for laxness in the official agencies.
4. To help interpret to the citizens of the state the objective of the official agencies.
5. To serve as a medium of information for the general public.
6. To undertake certain types of research.

They are real responsibilities.

Responsibilities of Professional Organizations

Here we have organized groups of specialists and both specialists and general practitioners together with organized groups of persons in professions allied with medicine. These groups have or should have committees that concern themselves with prevention of blindness. The members of these committees to be most effective must think in terms of the group approach or mass approach rather than the individual who seeks the services of a physician. One or more members of such committees should inform themselves as much as possible about methods of health education. They should come to realize that there may be available in their own health department specialists in this field who are available for consultation.

Then these organized professional groups may be very instrumental in outlining broad research subjects that some official agency can undertake. It is believed that there are fertile fields among eye

conditions that should be so investigated. Some of our eye societies have already started to develop this field.

Summary

One of the main points I would leave with you is that the success of much of this work of prevention of blindness hinges on the individual, the individual physician, the individual parent, citizen and teacher. The individual must first realize himself that all is not well, he must then have initiative to do something about it, and finally he must have knowledge as to the best course of action. If any one of these mental steps is absent or not properly directed, then the finest of hospitals, an abundance of excellent eye clinics, the best medical profession in the world, and the best public health machinery would be ineffective in preventing disaster in many cases.

A fascist state might work differently, but not a democracy.

News of State Activities

THIS Section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Brief and timely items only can be used, because of the limitations of space

Colorado

"Colorado has already sponsored one rural eye clinic so far this year, and expects to hold two more such clinics before July 1. These sessions usually last six days, the first three days being given over to the diagnosis of all school children having some error in vision, irrespective of status; the last three days of the clinic are taken up wholly by the refraction of the medically indigent. Certified ophthalmologists do the work in these clinics and are remunerated by the Division of Maternal and Child Health of the Colorado State Health Department."

—*Director, Maternal and Child Health, State of Colorado,
Division of Public Health, Denver, Colorado*

"During the year ended December 31, 1939, the Sight Conservation and Prevention of Blindness Committee of the Adult Blind Home and Association for the Blind furnished glasses to 20 people at a cost of \$98.75. In each case a complete ophthalmologist's report was given to the Committee by the Colorado General Hospital Eye Clinic and the Ave Maria Clinic of Denver. This service has proved extremely valuable, as the patients have been in such categories as to prevent their receiving such help under the Social Security Prevention Program."

—*Executive Secretary, State Commission for the Blind, Denver, Colorado*

District of Columbia

". . . The District of Columbia Health Department has issued new birth certificates, in use as of January, 1940, which contain a question as to the prophylaxis for ophthalmia neonatorum."

—*Director, Bureau of Maternal and Child Health, Office of the Health Department, Government of the District of Columbia*

"The District of Columbia Society for the Prevention of Blindness has inaugurated a series of Round Table discussions with the novel feature that they were planned by the group participating in them. Invitations were sent to each hospital social service department; to the Department for the Blind of the Family Service Association; to the Public Assistance Division; and to the Social Service Department of the District of Columbia Health Department, with the suggestion that representatives attend preliminary meetings to arrange the series. These representatives selected time, place, and subject matter for the Round Tables.

"Six general subjects, as related to the eyes, are being considered, as follows: General Diseases; Neurological Disturbances; Tuberculosis and Syphilis; Vitamin Deficiencies and Allergic Disturbances; Social Significance of Refractive Errors; and Community Resources for the Visually Handicapped. An ophthalmologist was invited to lecture for 30 or 40 minutes at each of the first four meetings. Following the lecture, a designated member of the group acts as leader in discussing the medical facts just heard, and their application to social workers' use. Many social workers feel inadequately equipped for proper understanding of eye patients. The Society hopes, through the Round Tables, to provide these workers with information as well as to refresh their knowledge. Further, the social worker has a real function in supplementing the doctor, and the purpose of these sessions is to have an opportunity to discuss the rôle of the social worker in meeting the needs of visually restricted patients.

"For the fifth of the Round Table sessions we shall have Miss Elizabeth G. Gardiner, Medical Social Worker of the National Society for the Prevention of Blindness.

"The District of Columbia Society for the Prevention of Blindness has sent out the first number of a small house organ called 'Prevention of Blindness Quarterly.' Although intended primarily as a report to members and donors, this modest messenger is freighted with the hope of creating interest in the Society and making new friends for it."

—*The District of Columbia Society for the Prevention of Blindness,
Washington, D. C.*

Illinois

"*Report on One Year's Work for the Chicago W.P.A. Eye Testing Project.*—The W.P.A. Eye Testing Project has been under the direct supervision of the Illinois Society for the Prevention of Blindness since its beginning in December, 1936. This supervision has included the following:

1. Selection of staff
2. Training of staff
3. Setting up of standards for testing and for a correction program

"The staff was selected on a basis of educational background and personality qualification. Four groups were selected for the work: (1) testers; (2) recorders; (3) office workers; (4) a group who could work exclusively on the correction program.

"On this project every child in the schools had his visual acuity tested with the Snellen chart at a distance of 20 feet. We either use an illuminated chart or place it so it has at least ten foot-candles of natural light on it. All deviations from normal were listed by the recorders and sent to the office. The defects were then divided into 1X, 2X and 3X defects, 1X being a defect up to 20/40; 2X, 20/40 to 20/70; and 3X, 20/70 or below. Lists were then made of each of these categories, and work on corrections started on the 3X cases first. The parents of the 1X and 2X cases were notified that a defect had been discovered, and were urged to see someone who could make a complete and thorough examination of the eye. With the co-operation of the principals, more intensive work was done with the 3X cases, who are potential candidates for sight-saving classes.

"During the school year of 1938-1939, 41 high schools in Chicago received this service:

95,213 vision tests were made.

83,022 were found to have normal vision.

12,191 were found to have defective vision.

Of this number, 4,957 were 1X cases

5,931 were 2X cases

1,303 were 3X cases

"During this same period, 224 elementary schools were given this service:

90,926 vision tests were made.

80,206 were found to have normal vision.

10,720 were found to have defective vision.

Of this number, 4,752 were 1X cases.

5,077 were 2X cases.

891 were 3X cases.

"Besides visual defects, all strabismus cases are given special attention. The correction program follows the testing program by an interval of about three to six months. Of necessity this is slower

than the testing program. It is interesting to note where the corrections during this year were made. During the year 6,489 corrections were made. Of this number, 1,458 were 3X cases and 5,031 were 2X cases. No record is kept of the 1X cases to date, although this next year some such tabulation will be made. Of the 3X cases (1,458),

357 went to ophthalmologists
547 went to optometrists
554 went to clinics

“Of the 2X cases (5,031),

1,568 went to ophthalmologists
1,814 went to optometrists
1,649 went to clinics

“As a result of the survey, 102 children were referred for placement in sight-saving classes in Chicago.

“A similar project has been started for the whole State of Illinois. After 12 months, projects have been set up in 32 of the 102 counties of Illinois. A total of 1,341 schools has been finished; a total of 112,664 visual acuities tested; and 10,093 defects discovered. Of this number,

6,249 were 1X
3,114 were 2X
730 were 3X

“The correction program downstate is slower and more difficult than that of Chicago because of fewer facilities and greater distances to be covered.”

—*Executive Secretary, Illinois Society for the Prevention of Blindness,
Chicago, Illinois*

Minnesota

“The recently incorporated Minnesota Society for the Prevention of Blindness will in the very near future begin the soliciting of funds in the state. The date tentatively agreed on is March 20. It will interest the readers of THE SIGHT-SAVING REVIEW to know that the moving spirit in the incorporation of the above-mentioned society is Dr. Frank E. Burch, ophthalmologist of St. Paul, who is now lecturing at the University at Peiping, China. The Society for the Prevention of Blindness has the approval of the Minnesota Academy of Ophthalmology and has, furthermore, the services of a liaison committee representing the Academy. As soon as finances permit, the Society will engage a permanent ex-

ecutive secretary. In the meantime, Mr. J. C. Lysen, superintendent of the Minnesota School for the Blind, Faribault, is serving as the acting executive secretary. Officers of this society are: Mrs. Alfred S. Pillsbury, Minneapolis, President; Dr. Egil Boeckmann, St. Paul, Vice-President; Mr. Louis W. Hill, Jr., St. Paul, Treasurer; and Dr. Frank E. Burch, Secretary to the Executive Committee."

—*Acting Executive Secretary, Minnesota Society for the Prevention of Blindness, St. Paul, Minnesota*

New Hampshire

"On December 27, 1939, a meeting of the Medical Advisory Committee of Ophthalmologists was held at the Eagle Hotel in Concord. Those present were as follows: four of the five members of the Advisory Committee; one member of the Board of the Department of Public Welfare; the Commissioner of the Department of Public Welfare; the Sight Conservation Consultant of the Department of Public Welfare.

"A written report of the interdepartmental meeting of supervisors, and the accomplishments of the Sight Conservation Program since organization of the committee, was given to each of those present. The committee was interested in the number and type of cases reported as cared for in the Sight Conservation Program, and advised the continued care of the medical reports with the added information, 'Visual acuity at time of examination.' This additional information could be used for comparison of corrections of different dates. They approved the complete list of ophthalmologists, both in and out of the state, to be used on the Aid to Needy Blind and Sight Conservation Programs.

"Three test cases on the Aid to Needy Blind program were discussed and referred to Dr. Rice of the Social Security Board in Washington for advice regarding eligibility, in order that we might have the benefit of his contacts with other states. The committee felt that, if possible, the department should assume more responsibility on cases with eye difficulties which are secondary to other physical conditions (when there are no other public or private resources available), with the approval of the Board of the Department of Public Welfare on each individual case. They stressed the fact that Wassermanns should be taken on all patients with eye difficulties, and especially on those cases where there is a suspicion of syphilis. They agreed to do more work on the prevention of blindness, with particular emphasis on eye accidents due to fireworks, firearms and dynamite, etc.

"The chairman of the committee is to give a report of the com-

mittee to the New Hampshire House of Delegates of the State Medical Society when they meet in May. As it was agreed that membership on the Medical Advisory Committee of Ophthalmologists should rotate among the ophthalmologists in the state, in order to create a better understanding of the Sight Conservation and Aid to Needy Blind programs, a new ophthalmologist will be appointed to the committee at this meeting in May.

"It was decided that the chairman of the advisory committee, with the permission of the Governor and his Council, should attend the annual meeting of the National Society for the Prevention of Blindness."

—*New Hampshire State Department of Public Welfare, Concord, N. H.*

"On December 18, 1939, an Interdepartmental Meeting was held at 9 Capitol Street, Concord, New Hampshire. Those present were as follows:

Dr. Mary Atchison, Director, Maternal and Child Health Division, State Board of Health.

Miss Elizabeth Murphy, Director, Public Health Nursing, State Board of Education.

Miss Anne Stephens, Supervisor of Field Services, State Department of Public Welfare.

Miss Louise G. Sexton, Sight Conservation Consultant, State Department of Public Welfare.

Results of the meeting were as follows: It gave us a better understanding of the amount of work covered by the other departments and the difficulties which they meet, as, for instance, the small number of public health nurses to a given population—such as one nurse to 10,000 persons; and the number of towns and school children covered by one school nurse; in some instances, eight towns to a nurse and 2,000 children to a nurse.

"Plans for reaching the preschool child through the Board of Health nurses and maternal and child health clinics were made. Acceptance of the fact that any health program must include emphasis on eye care was evidenced. An invitation was received by the Department of Public Welfare to give a talk on eyes to the Board of Health nurses at one of their monthly meetings. (This talk was given on January 26, 1940, to 35 nurses, and pamphlets on eye care were distributed.)

"In searching for and following through eye cases, regardless of who finances the medical care, the Board of Health was willing to assume responsibility for those needing eye attention from birth to the age of six years; the Board of Education for those from seven

years of age through school age; the Department of Public Welfare, the adult. With this co-operation the department ought to be able to find and care for many of the eye problems in the state."

—*State Department of Public Health, Concord, New Hampshire*

New York

"*Observations of a State Prevention of Blindness Worker.*—For a number of years I have visited the Glen Cove public schools yearly, by invitation. It has been gratifying to note the improvements which the school system is carrying on in the way of eye protection and eye care. Credit in this persistent improvement is due to four capable workers—Dr. Francis C. Edmonds, Medical Inspector; Mr. Hannibal H. Chapman, School Superintendent; and last, but not least, the two school nurses, Miss Mary Birmingham and Miss May Barnard. They have worked together earnestly and sincerely, endeavoring to carry on year after year a better program in which eyes have had consideration along with all other phases of health work. Recently they invited me to review a group of high school children that they believed had color vision deficiency. They then prepared a list of these students for re-examination. Each student was tested, and only four were found not to have a deficiency. Out of the 800 students in the high school, the 24 who were found lacking in color vision represented 3 per cent of the school population. These figures coincide with nearly all of the textbooks I have ever read. Furthermore, of this group of 24, two-thirds were male and one-third was female, which again bears out the theory.

"I have been very much impressed by the careful testing which resulted in such an accurate elimination. It demonstrates clearly the high type of work which is being carried on in that particular school system."

—*Director, Prevention of Blindness Service, New York State Department of Social Welfare, New York, N. Y.*

South Carolina

"The Division for the Blind of the South Carolina State Department of Public Welfare has held many screening clinics throughout the state. However, the more recent ones were conducted in a little different manner than those formerly held. These proved very satisfactory. In one county, the County Superintendent of Education requested that a member of the staff of the Division for the Blind visit his county and screen the school children. In co-operation with the attendance teacher, the following plan was worked out: The teacher contacted the schools and requested that the teachers refer children who had shown some indication of defec-

tive vision. The attendance teacher arranged to have these children brought in school buses to one of the clinics which were conducted at five different points in the county. There were 647 children screened, representing 23 schools; of this number, 43 were found to have vision of 20/70 or poorer; and 161 had defective vision, though better than 20/70. There were still a large number who had normal vision, but apparently were suffering from some eyestrain.

"The names and addresses of these children whose vision was 20/70 or poorer or who had some other obvious condition, were forwarded to the County Department of Public Welfare, with the request that they be investigated for the purpose of determining whether their respective families were able to supply the examination and whatever treatment might be found necessary. When these investigations are reported to the Division, an authorization will be issued in each instance where a family is unable to supply these services. Treatment will also be given whenever recommended. The Division also forwarded the names of the children who have defective vision—but better than 20/70—with the request that their families be advised and in those cases where the family is unable to secure the services, to endeavor to supply this need through some local community resources.

"Similar clinics were conducted in another county recently, and in this case the Division went into the county upon the invitation of the County Department of Public Health. The nurse made arrangements similar to those made by the attendance teacher just referred to. There were 342 children screened, and 97 had vision of 20/70 or poorer, while 98 had defective vision, but better than 20/70. There were still many others who apparently were suffering from some eyestrain, although their vision was normal. The same plans will be followed in this county as to investigation, examination and treatment, as outlined above. Because of a serious situation found in this county, the Division plans to screen all children and make a survey of the lighting in all schools.

"The community interest in these clinics was most gratifying. Many children had to come quite a distance, and remain at the clinic practically all day. Realizing that most of these would have to remain at the clinic for some time, and realizing that almost all these children were unable to supply any lunch for themselves, the local Red Cross furnished lunch for all children. The clinics were visited by various members of the Department of Education, Department of Health, civic clubs, and other representative groups throughout the country, thus showing their real interest in the work that we are endeavoring to do."

—*Chief, Division for the Blind, State Department of Public Welfare,
Columbia, South Carolina*

Tennessee

“Report of Activities of the Sight Conservation Service During Its First Year and a Half of Operation.”—During the first year and a half of its existence, the Sight Conservation Service has been engaged in the following six major activities:

- (1) A survey of the blind of the state to determine the causes of blindness prevalent in Tennessee.
- (2) The prevention of blindness in those in whom blindness could be prevented.
- (3) The education of the general public in the general care and safeguarding of their eyes and in what they can do to assist in the prevention of blindness, through talks, movie films, the radio, and articles given to various newspapers throughout the state.
- (4) The finding of visually handicapped children eligible for enrollment in sight-saving classes and the establishment of sight-saving classes.
- (5) The restoration of sight to all those to whom sight could be restored, who would accept this service.
- (6) The hospitalization of all trachoma cases by the Department of Public Health at the Trachoma Hospital in Richmond, Kentucky, who would accept this hospitalization.

“The survey of the blind of the state, as to the causes of blindness prevalent in Tennessee, is approximately 60 per cent completed.

“Out of this survey have come the following facts:

1. This survey represents 2,400 cases of blindness, and 51½ per cent, or a total of 1,237 cases, have a chance varying from an excellent one to an outside chance to have sight restored in one or both eyes in whole or in part.
2. Approximately 65 per cent of this blindness could or might have been prevented.
3. This survey has also shown that during the past ten years an average of 130 persons each year have been going blind in Tennessee.

“During the past year and a half, 138 persons have been or are being prevented from going blind through the efforts of the Sight Conservation Service with the co-operation of the eye physicians of the state and various civic groups—chiefly represented by the Lions Clubs. Four of our Lions Clubs (Gallatin, Nashville, Waverly, and Centerville) are carrying on local projects among the

visually handicapped children of their counties in co-operation with the Sight Conservation Service. . . . During this period, 43 talks on the causes of blindness prevalent in the state, and their prevention, have been made by the director of the Sight Conservation Service to various public, civic, and medical groups—reaching approximately 4,500 persons. The talking slide film, 'The Nurse's Responsibility in Saving Sight,' has been shown 20 times before various public groups—reaching approximately 2,325 persons. The transcribed fireworks program, prepared by the National Society for Prevention of Blindness for the Fourth of July, was presented over the air by six radio stations of the state in 1938, and by three in 1939, and since July 1, 1938, no report of an eye injury due to fireworks has been received by the Sight Conservation Service. This, together with innumerable articles released to the press, and the distribution of some 1,200 leaflets at the State Fair this year on 'Tennessee's Need for Sight-Saving Classes,' represents in brief the educational activities of the Sight Conservation Service.

"During this period 80 children have been found who are eligible, because of their visual defects, for enrollment in sight-saving classes. Twenty-seven are at present enrolled in the two sight-saving classes which have been established in Nashville; one in the public school system, which is caring for 15 children; and the other at the Tennessee School for the Blind, which is caring for 12 children. It is hoped that in the very near future another sight-saving class will be established in Nashville, for which a teacher has already been trained and is available.

"During the past year and a half, 247 persons have had sight restored to them in one or both eyes in amounts varying from 2 per cent up, either by surgery, surgery and glasses, treatment, or by glasses alone. Thirty-six persons have had surgical operations to restore sight—of which one has apparently been a failure—and eight persons have refused operations to restore sight, for whom this surgery and hospitalization were arranged by the Sight Conservation Service. Seven persons have refused surgery to prevent blindness, which surgery might also have resulted in the restoration of some sight.

"Ten cases of trachoma have been hospitalized and discharged as cured by the Tennessee Department of Public Health since July 1, 1938."

—*Director, Sight Conservation Service, State of Tennessee,
Department of Public Health, Nashville, Tennessee*

Washington

"The Division for the Blind in the State of Washington is glad to announce that during the latter part of February, public health

nurses' institutes will be held in three different sections of the state. Miss Eleanor W. Mumford, associate for nursing activities of the National Society for the Prevention of Blindness, has been made available to the Division for the Blind and the State Department of Health, working in co-operation in presenting these institutes. Enrollment in each institute has been limited to 50 persons. Medical social workers connected with out-patient clinics have been invited to attend the institutes. This series of institutes is the realization of an effort first put forth two years ago, so we feel particularly gratified in being able to announce the institutes at this time."

—*Supervisor, Division for the Blind, Department of Social Security,
State of Washington, Olympia, Washington*

Territory of Hawaii

"1. Miss Florence Carr, Sight Conservation Worker for the island of Hawaii, who attended the institute for medical social eye workers held by the National Society in the spring of 1938, has received her solo pilot's aviation license. Aviation is her avocation when not traveling the big island in the interest of her work.

"2. The sight conservation worker for Maui County, Miss Rebecca Stoddard, has held two successful eye clinics for school children in rural areas—one on the island of Molokai, which was attended by 78 persons; and a second eye clinic at Lahaina, Maui, with over 100 students attending. This made eye medical follow-up in all schools on the island of Molokai 100 per cent, as well as 100 per cent eye medical follow-up in Lahaina district.

"The island of Hawaii being the largest island and representing the greatest rural population, four eye clinics have been held. One clinic was held in the northern district, Kohala, with 48 persons attending, Kona district, Kau, and Honokaa. The workers organize and arrange for eye physicians to attend the clinic, and have previously carried on vision testing in all schools of the district and made financial arrangements for needy cases, so that after clinic all school children in the district have 100 per cent medical follow-up. The clinics are also attended by preschool children and adults. The field workers on each island have now assumed the responsibility for referring all eye surgery cases to the Bureau of Crippled Children. The maximum number of cases referred have had operations during the fall period."

—*Director, Territorial Department of Sight Conservation and
Work with the Blind, Honolulu, Territory of Hawaii*

Note and Comment

Society's Program During National Conference of Social Work.—For the first time, the National Society for the Prevention of Blindness, through the chairmanship of its medical social worker, Miss Elizabeth G. Gardiner, is assuming direct responsibility for a program to be presented at the National Conference of Social Work to be held in Grand Rapids, Michigan, May 26–June 1. Following is the preliminary program:

TUESDAY, MAY 28: 2:00 P. M.—3:30 P. M.

Mrs. Mary Hopper Spencer, Executive Director, District of Columbia Society for the Prevention of Blindness, Washington, D. C., presiding.

Possibilities for Restoration of Sight and Prevention of Blindness in the Aid to the Blind Program.

1. As Seen by the Social Security Board.

Ruth Blakeslee, Chief, Division of Policies and Procedures, Bureau of Public Assistance, Social Security Board, Washington, D. C.

2. As Seen by a State Prevention Worker in the Field of Public Welfare.

Anna Harrison, State Medical Social Worker for the Blind, State Department of Public Welfare, New Orleans, Louisiana.

Discussants: Mr. Benjamin E. Youngdahl, Associate Professor of Social Work, George Warren Brown Department of Social Work, Washington University, St. Louis, Missouri.

Mrs. Eleanor Brown Merrill, Executive Director, National Society for the Prevention of Blindness, 50 West 50th Street, New York, N. Y.

Open Discussion.

FRIDAY, MAY 31: 2:00 P. M.—3:30 P. M.

Since finding the early stages of eye difficulties presents the best opportunity for preserving sight, two illustrations of case finding and effective care will be presented by the agencies doing the work.

Mrs. Mary Hopper Spencer, Executive Director, District of Columbia Society for the Prevention of Blindness, Washington, D. C., presiding.

The General Agency's Opportunity for Sight Conservation.

1. Among Children in Four Rural Counties.

Eleanor Hearon, Director of Social Service, Colorado General Hospital, Denver, Colorado.

2. Among Older People.

Margaret W. Wagner, Executive Secretary, The Benjamin Rose Institute, Cleveland, Ohio.

Discussants: Dr. Ralph R. Sachs, Ophthalmologist, Children's Fund of Michigan, 660 Frederick Street, Detroit, Michigan.

Miss Marcella Cohen, Supervisor, Prevention of Blindness Department, Pennsylvania Association for the Blind, 308 South Craig Street, Pittsburgh, Pennsylvania.

Open Discussion.

Congress on Ophthalmology to be Held October 11 and 12, 1940.—A Pan-American Congress of Ophthalmology will be held in the city of Cleveland, Ohio, on October 11 and 12, 1940, according to an announcement issued by the Committee of the Congress, Drs. M. E. Alvaro, Conrad E. Berens, and Harry S. Gradle. All ophthalmologists of the Western Hemisphere are invited to attend. Until such time as the Pan-American Congress can elect its own officers, the American Academy of Ophthalmology and Otolaryngology has volunteered to undertake arrangements, after which the meeting and the future of the Congress will be placed in the hands of its elected officers.

Eighth American Scientific Congress to Meet in Washington, D. C.—In Washington, D. C., from May 10–18, the American Scientific Congress will convene for the purpose of furthering scientific thought and achievement, and to celebrate the fiftieth anniversary of the founding of the Pan American Union. Distinguished scientists and scholars throughout the Americas will join in the examination of problems peculiar to this hemisphere, in the belief that their collective and harmonious endeavors not only advance the boundaries of science, but serve to cement friendly international relations. Not since the winter of 1915–16 has this annual Congress met in Washington. In those years also civilization was confronted with the spectacle of a world in upheaval. It is hoped that

through the Eighth Congress the American republics may demonstrate the uninterrupted scientific activity and advancement promoted by the atmosphere of peace and collaboration evoked by the Pan American Union. Section Five of the Congress—Dr. Thomas Parran, Surgeon General of the United States Public Health Service, acting as chairman—will be devoted to the subject of public health and medicine. The scheduled program of practical discussion by prominent authorities includes the problem of rehabilitation of physically handicapped children in terms of causes, prevention, and methods of treatment.

Connecticut Increases Blindness Prevention Expenditures.—The State of Connecticut Board of Education of the Blind, in its combined annual reports for the two years ended June 30, 1938, presents prevention of blindness expenditures—exclusive of salaries and expense of personnel—for the years 1936–37 and 1937–38, indicating an appreciable increase during the latter period:

	1936–37	1937–38
Ophthalmological examination	\$539.25	\$624.25
Corrective surgical or medical treatment*		
Eye care	196.44	518.23
Other care	158.49	82.95
Glasses furnished		
Simple refractive errors	331.24	454.15
Aid in serious defects	188.56	377.87
Other services to clients	105.38	228.35
Totals	\$1,519.36	\$2,285.80

Throwing Light on a World of Activities Through Glass Bricks.—Hundreds of newly constructed or remodelled buildings housing workers of all types are being made more cheerful, attractive, and efficient by the employment of glass bricks. Pleasing to look at, easy to clean, amazingly strong, and versatile in their uses—ornamental as they are practical—they are hailed by engineers and architects throughout the civilized world as a means of erecting factories, offices and homes which are striking to look at within and without, soundly constructed, well insulated and better lighted.

* The Board of Education of the Blind has been able to obtain the nominal state rate at general hospitals for eye care and treatment services, which has resulted in a substantial saving.

The use of glass brick is more expensive than ordinary brickwork or concrete. Although glass bricks are not transparent and do not admit as much light as the same area of sheet glass, their translucence screens an ugly view such as often surrounds factory locations, or insures privacy in a secluded area indoors, while admitting outer light and diffusing into far points of the room a greater relative amount than is admitted through a window of the same dimensions. Engineers claim that while the lighting in the area nearest a glass brick exterior wall is not unnecessarily bright for the activities undertaken within the room, lighting transmission under ideal circumstances is about 76.2 per cent of the maximum for flat surfaces of sheet glass, and the excess light is so directed into the room that, at 20 feet from the wall, the room illumination is considerably higher than that secured through the conventional window.

Hollow or solid glass bricks find practical use in improving lighting conditions when employed as corridor and office partitions or in staircase walls. Since it is now possible to manufacture lenses of glass and concrete sufficiently strong for heavy duty in roofs and ceilings, diffused daylight is made possible in many more factories, swimming pools, theatres, shops, surgeries, restaurants, and other types of buildings, at the same time providing a strong and safe surface for foot traffic.

Facts About the Eye Exhibited.—The New York Museum of Science and Industry includes in its broad range of subject matter an attractive and stimulating exhibit on facts about the eye. Along with the exhibit are moving pictures and lectures presented at specified times.

New Glasses That Work and Play.—While feminine beauty is being enhanced by glittering “costume” jewelry, and present-day homes and cars equipped with useful and decorative articles manufactured from plastics and synthetic resin, a new “glass,” ideal for spectacle lenses, has been produced from coal or natural gas or oil, water and air. Perfectly transparent, lighter in weight, clearer and more flexible than the perishable material made for hundreds of years from sand, synthetic resin glass may be molded into lenses which allow of polishing and grinding for optical purposes, yet

which are shock-resistant and inexpensive, making them practical for use by active children whose family means are limited and by industrial workers in hazardous occupations calling for protection against eye accidents.

Certain resin glass products fulfill functions quite beyond the scope of ordinary glass at its best. Most spectacular is the type by means of which light may be "piped" through surgical or other instruments, illuminating anatomical dark corners so that the doctor or dentist works more swiftly and surely. A less conspicuous member of the synthetic glass family is that which forms the "sandwich-filling" layer in sheets of safety glass, lastingly non-brittle and an insurance against the dispersal of glass fragments if a blow strikes.

The number of ultimate uses which will be found for a material as transparent as glass and as unbreakable as wood is incalculable, and, thanks to modern science, it may be hoped that these products will be economically made for the many from cheap and plentiful common substances.

Radio Program Features Safety for Children.—Several songs concerned with the protection of eyesight have been included by Irving Caesar, writer of popular songs, in his radio program known as the "Sing a Song of Safety Club," which is broadcast over Station WOR, New York City, at 12:30 P.M. every Sunday.

These health education lessons, intended primarily for young children, but frequently applicable to adults, as well, have included such lyrics as those entitled, *A Boy Looked Down a BB Gun* and *A Rock Was in the Snowball that Hit Poor Billy's Eye*. The verses are as follows:

A BOY LOOKED DOWN A BB GUN
A boy looked down a BB gun,
He thought it wasn't loaded,
Now wasn't that a silly thing to do?
The boy may never look again,
Because the gun exploded,
A safety lesson let this be for you!

A ROCK WAS IN THE SNOWBALL THAT HIT POOR BILLY'S EYE

A rock was in the snowball that hit poor Billy's eye;
Though meant in fun, the harm was done,
And that made Billy cry;
It's great to play and throw balls of snow that's clean
and white.
But putting rocks in snowballs
May cost your pal his sight;
Remember ev'ry season brings games for us to play,
So in winter play with reason,
And you'll play again in May.

Doctors Hear Plea for More Legible Printed Matter.—"For ages human eyes were used mostly for distance seeing, and there is little if any strain for normal eyes in looking at objects at a distance of 20 feet or more. As the distance between the eyes and the object on which they are focused decreases from 20 feet, the work of the eyes increases." With these words Dr. Leon F. Gray, of Shreveport, in a paper presented before the Louisiana State Medical Society, introduced an appeal for further research into legibility of reading matter circulated to the general public. He said, in part:

"For many centuries, nearly all labor which required close use of the eyes was done outdoors. But as refinement of materials and methods has progressed, it has become both desirable and necessary to do more and more work indoors. Less than 500 years ago, few people could read. Then came the printing press, and today few are the people who do not read, and most people read a great deal. . . . Considering the vast importance of reading and writing in modern life it is surprising that they have been so little investigated by physiologists and ophthalmologists. The forms of printed types are derived from manuscripts and have been modified for technical reasons. Further advance has been almost entirely empirical, and even in the best presses more care has been exercised in obtaining aesthetic effects than in fostering legibility. If we consider ordinary Roman printed characters, we find that all capital letters extend above the line. Of the small letters, thirteen are short, eight extend above the line (ascending letters), and four below the line (descending letters). There are thus twice as many ascending as descending letters, and in an ordinary

page of print it will be found that of the long letters, about 85 per cent are ascending and only 15 per cent descending. Examination of the short letters shows that their most characteristic features are in the upper parts. Hence, in reading, attention is specially directed to the upper parts of the letters, as is strikingly demonstrated by covering the lower parts of a line of print with a card. The print is almost as legible as if it were uncovered. If, however, the upper halves of the letters are covered, it is almost, if not quite, impossible to read the print.

“Legibility is not determined solely by visibility in the physiologic sense of the term. Thus the emphasis of some lines in letters increases legibility while diminishing visibility. . . . Reading is a highly complex act, and the rules which can at present be devised for the avoidance of strain and discomfort involve a multiplicity of factors which have not yet been satisfactorily correlated.”

Eye Clinic in the Wilderness.—In an obscure village in northern India, serving Hindu and Mohammedan natives from the surrounding country and thousands of patients from outlying districts, a surgeon who, forty years ago, went to Baluchistan as a young medical missionary has awed visiting American army doctors by his technique in the treatment of eye cases under the most primitive conditions. Dr. Henry Tristram Holland, today Sir Henry Holland, is said to have performed more cataract operations than any other living man. American visitors saw registered 6,000 patients, upon whom 2,500 eye operations were performed, 1,200 of which were cataract extractions. The hospital facilities available to the hordes of sufferers reaching Shikarpur by train, cart, camel, and afoot consist of a small four-room building, equipped with operating rooms containing rough wooden tables. Instruments fashioned of brass by native artisans are sterilized in pans of alcohol, or of boiling water kept hot over kerosene stoves. Illumination for delicate surgery consists of a bare electric bulb held in position by an attendant. Post-operative patients have quarters in an open compound, canopied against rain. Because many have travelled long distances for medical attention, one relative is permitted to accompany and remain to nurse each patient. Dr. Holland's daily eye operations include every type of case, always with a high percentage of cataract extractions. Inadequate diet, long exposure to

glaring sunlight, and unhygienic living conditions produce an endless flow of native patients to his clinic door, approximately a tenth of whom must be turned away with a diagnosis of absolute glaucoma. "Observers from our shores, reporting on their field experiences, have received fresh inspiration for the belief that, if sound techniques are employed, 'field conditions' in handling a huge number of patients need not militate against highly favorable results," states a recent issue of *The Health Officer* (London).

Explosives Manufacturers Warn Against Blasting Caps.—The Institute of Makers of Explosives is appealing to school authorities to assist in its effort to prevent accidents resulting from the handling of blasting caps by children who do not realize their potential danger. Through the carelessness of workmen these detonators, which are used for firing high explosives, are sometimes left on the site of blasting and building activities, especially in rural and suburban areas in the spring and summer months. Ignited from a match, thrown into a fire, or struck with a stone, blasting caps may cause infinite damage and painful injury. Educators are requested to influence their classes not to touch such caps, but to report their discovery to an adult competent to dispose of them safely.

School Bus Drivers' Eyes.—The health officer for five counties in North Carolina has found that of the youths applying for permits to drive school buses in that state, one third have disqualifying visual defects. One North Carolina county last year examined its would-be drivers for the first time, with 28 out of 84 failing to pass. Of the 28 rejected, only one failed in but a single visual test; all the rest failed in two or more. Three applicants were found to be blind in one eye. The majority of failures were due to inability to effect quickly the transition from near to distance vision. These eye tests are designed to establish whether the applicants possess normal acuity and are capable of adequate functioning under such circumstances as normally obtain in driving a car. Some who failed were later checked by an ophthalmologist, who found still further defects in three out of five. The county grand jury has commended the local health department for inaugurating this safety measure, and authorizes similar tests for future applicants.

New Prevention of Blindness Quarterly.—In December, 1939, The District of Columbia Society for the Prevention of Blindness issued Volume I, No. 1, of their *Prevention of Blindness Quarterly*. The initial number proved to be an attractive little eight-page booklet, carefully prepared and containing a number of brief but provocative articles. One called attention to a summary of that Society's ophthalmia neonatorum study in five Washington hospitals during the years from 1933 to 1938. Acknowledgment was made of the gift of a talking book to a junior sight-saving class in the city. A brief discussion was presented on the paper, "What the Pediatrician Does to Save Sight," presented by Dr. Philip M. Stimson at the National Society's Annual Conference last October. There were a number of notes regarding activities of members of the District of Columbia Society's staff; a note welcoming inquiries addressed to the *Quarterly*; brief commendation of a leading article on handwork for partially-sighted children contained in November's *Sight-Saving Class Exchange*, and an expression of the season's greetings to its new readers.

Spare Seats in English and Scottish Blind Schools.—At conferences in Manchester and Edinburgh last year, speakers expressed their gratification over the decline in registrants at schools for blind children. Only two-thirds of the facilities available in Manchester were required, and in Scotland it was computed that the total enrollment of blind children had been similarly reduced in the past fifteen years.

Engineering Societies Discuss Light Allied to Safety.—In an address presented before a joint session of the New York Section of the Illuminating Engineering Society and the Metropolitan Chapter of the American Society of Safety Engineers, Mr. Howard M. Sharp, the general secretary of the former group, discussed the subject of light as an ally of the safety engineer. Remarking that while the wealth of available information relating to safety measures was enormous, losses through failure to abide by the known fundamentals are appallingly great, the speaker maintained that it is not even yet well understood what a significant part light can play in reducing accident tolls. It was suggested that engineers

think more of light in terms of people, and through them in terms of safety. It was stated that the public and its response to environment determines by its human reactions the results to be achieved by engineering. The engineer must therefore think more of his living subject in terms of human behavior, not as a mechanized unit the operation of which can be automatically controlled. Deploing the emphasis placed on charts and tables stipulating lighting minimums in terms of foot-candles, while overlooking fluctuating human elements which contribute to swell accident statistics—fatigue, inattention, false economies—the speaker said:

“Light affects the eye, and through that remarkable organ almost every emotional and physical activity of man. We can, therefore, construct the finest safeguards to life and limb only to find them reduced to a fraction of their theoretical efficiency because men can’t see to use them. We know that fatigue is quite facetiously called ‘an accident looking for a place to happen,’ but do we recognize that improper lighting contributes to fatigue, and thus to accident potentialities? It is well established that from 20 to 40 per cent of human nervous energy is consumed daily in the act of seeing. Experiments have shown that muscle tension can be relaxed or tightened simply by varying the lighting . . . It is apparent that too much of the time we subject people to conditions that require them to call upon their reserve emergency capacities for the execution of what we choose to call normal conditions. Then, when the real emergency arises, the reserve has been drained and the response is insufficient . . .”

Proceeding to a consideration of traffic fatality figures and their import to safety and lighting engineers, Mr. Sharp pointed out that since 1930 daytime street accidents have decreased 5.4 per cent, while the same period has shown a 54.5 per cent increase in fatal road accidents at night, despite the fact that night traffic is equal to only one-quarter the daytime volume. “No matter from what angle we approach this fact, the evidence is the same—lack of visibility is the one great difference between daytime and nighttime driving. While we can never reproduce at night the lighting conditions of the day, we can vastly improve on the admittedly inadequate attempts made to date. The only solution known that has proven effective is fixed lighting, out of the control of highway

users, placed at or along a dangerous location. . . . The thinking is that light-colored roads cause glare and eyestrain during daytime driving, but the proponents forget that light roads at night are a tremendous aid to visibility, and that possibly the wearing of dark glasses during the day will reduce glare, but nothing we can do at night will change the dark surface to a light surface. Safety engineers should raise their voices in unmistakable terms when things like this are mentioned."

Eyesight Symposium.—A large portion of the September, 1939, issue of *The Journal of the Missouri State Medical Association* was devoted to the following articles, appearing under the heading, "Symposium on Conservation of Eyesight":

"Ophthalmia Neonatorum," Leslie C. Drews, M.D.

"Loss of Eyesight in Children Due to Refractive Errors and Crossed Eyes," Winfred L. Post, M.D.

"Congenital Syphilis and its Effect Upon Eyesight," Philip S. Luedde, M.D.

"Causes and Prevention of Blindness in Adults," John McLeod, M.D.

"Industrial Eye Injuries and Hazards, Their Prevention and Treatment," Roy E. Mason, M.D.

"Conservation of Eyesight," Clyde P. Dyer, M.D.

In his study of ophthalmia neonatorum, Dr. Drews states: "There is no other disease in which prophylaxis is so brilliantly effective and so gratifying If treatment is started reasonably early, almost all the eyes are saved."

In his discussion of children with crossed eyes, Dr. Post encourages parents of such patients to foster interest in games involving guessing distances and gauging depth, since these occupations demand that the eyes maintain parallelism. As for failure to urge wearing of the prescribed glasses at a sufficiently early age, he writes: "Do not think that children will lose spectacles or refuse to wear them they like to see clearly just as much as anyone and will certainly set up a protest when the instrument of that vision is removed."

Dr. Luedde outlines the ocular conditions arising from congenital syphilis, and states in closing: "The point most to be stressed is

prophylaxis by complete examination of the pregnant woman and insistence upon serologic tests in all cases and, where tests are positive, early and prolonged arsenical and mercurial therapy in the prenatal period. In children in whom serologic tests reveal congenital syphilis, early and adequate antisyphilitic treatment will do much to prevent painful and destructive manifestations of the disease."

Dr. McLeod's study of the causes and prevention of blindness in adults is based upon a Pennsylvania survey of 11,852 cases and is general in its treatment. Dr. Mason emphasizes in his paper on industrial eye hazards and their prevention the acuteness of mental and economic suffering which can result from an accident involving loss of vision at a time of life when earning power is thereby greatly curtailed. He urges hospitalization of workmen suffering a penetrating eye wound, and careful note-taking in each case of eye injury. Damage by chemical substances and burns from arc welding are also discussed, and a closing plea is made for insistence by safety engineers on the employment of every known safety device calculated to minimize eye accidents.

Malingering as Observed by a Military Eye Surgeon.—It is important that a patient suspected of ophthalmic malingering be tested, after study of the history and documents, without intimation of doubt on the part of the examiner. Significant and simple procedures which may be employed to determine visual acuity in either or both eyes are described by Sydney Tibbles, L.R.C.P., L.R.C.S. Ed., in an article in the *British Medical Journal*. He remarks that healthy pupils contract uniformly in the light of a small torch. Nearsighted subjects commonly have larger than normal pupils, while older patients have relatively smaller pupils than young ones. A patient claiming blindness in one eye may be asked to read small print held a foot away, and to repeat the reading with a ruler held a few inches from his eyes. If he reads readily the second time, it is because he is using both eyes. A strong prism may be held base up or down before the bad eye while the subject is instructed to pick up and write with a pen placed before him. Attempting this with both eyes open, if difficulty is experienced in grasping and using the pen, the patient sees with both eyes and the

objects appear to be some inches apart. Reading alternate red and green test letters through a red and a green lens which screen out letters of the same colors will reveal sight in both eyes if all letters can be identified.

Reviewing thousands of eye examinations conducted at recruiting headquarters during the last war, the writer recalls many malingerers, some of whom produced certificates attesting to various eye conditions, a large number of whom had artificial conjunctivitis induced by wilful use of irritants. In contrast were volunteers with genuinely acute eye problems, who sought ophthalmic surgery to enable them to meet service requirements. In another group were instances of psychological conflicts producing temporary blindness due to hysteria. It is remarked that at present the men examined, in their desire to be accepted, minimize any slight refractive errors found, and that evasions are relatively few.

Chemistry Shows Why We See Colors.—An initial paper on the chemical analysis of color vision in animals has been presented by a member of Harvard University Biological Laboratories. Dr. George Wald has isolated, in the cones of chickens' eyes, three pigments which he believes act as color filters: astacene, which is present in the scarlet of the lobster when boiled; xanthopyll, an egg-yolk yellow; and carotene. A violet-colored pigment which has been named iodopsin, thought to be the first light-sensitive pigment ever located in the cones of the eye, is present in the "film" on which the filtered light first falls in the seeing process. On the basis of these findings it is believed that many of the phenomena of seeing colors may ultimately be explained in terms of relatively simple chemical and physical reactions taking place in the eye itself. Many of the properties of vision are derived directly from the properties of substances located in the retina. Direct chemical analysis of retinas has proved the presence in the rods of a rose-colored pigment, rhodopsin, which is sensitive to light and which is manufactured in the body, presumably from vitamin A or retinene. This discovery promises to bridge a gap in our comprehension of the chemical relationship of vitamin A deficiency to night blindness.

Darkness Blankets Industry Abroad.—A multitude of problems have necessarily followed in the train of war developments in Europe, and the adjustment of industrial routine, personnel, and equipment to emergency requirements is engaging the thoughts of many in British industry. Not only must new workers be trained to fill the ranks thinned by military service, and work schedules rearranged to maintain production, but exact observance of safety precautions is imperative. Factories operating during hours of winter darkness are studying the Emergency Powers (Defence) Restrictions on Lighting, which specify:

“Subject as hereinafter provided, no person shall during the hours of darkness cause or permit any light inside any roofed building, closed vehicle or other covered enclosure to be displayed unless the light is so obscured as to prevent any illumination therefrom being visible from outside the building, vehicle or enclosure.”

After making every possible effort to obtain as much daylight and as efficient artificial illumination as possible, industry now is faced with the urgent necessity for blacking out huge expanses of windowed outer walls and factory roofs—at least to a degree satisfactory for rendering certain areas virtually invisible in the event of night attack from the air. Painting glass areas black, though a comparatively inexpensive means of complying with regulations, creates more or less permanent blocking of natural light through the same areas by day and increases the degree of glare indoors under artificial illumination, without adding extra protection against shattering in an emergency. Moreover, the smashing of even one unprotected window during operation in darkness would necessitate suspending work until the light hours of the following day, or immediate recourse to substitute measures. Thus opaque shutters and blinds, easy to adjust and designed to withstand the impact of flying objects, are regarded with great favor, provided it can be demonstrated that no light escapes during the blackout periods. In many cases, present circumstances demand that artificial lighting now be employed day and night in factory interiors. Except where management installs or has already equipped plants with efficient lighting units, employees accustomed to cheerful and bright work surroundings find themselves struggling to maintain efficiency

and optimism under dismal disadvantages. At the same time the entire populace is required to comply with stringent demands for widespread economy of supplies and, while these measures do not primarily apply to the employment of public utilities in the manufacture of necessities, extravagant use of power is condemned.

A temporary rise in industrial accidents seems inevitable, due to the acquisition of new and untrained help. However, steps are being taken to minimize dangers arising from inability to see safely in darkness after abandoning a well-lighted area. Men leaving plants to go into a completely darkened outside world, after hours under artificial light rendered more glaring by the very black-out equipment demanded for protection of property and the public, are safest after dismissal from their shift if the light intensity is gradually reduced toward the factory exits, or if workers are briefly detained in a "light trap" before leaving the factory premises.

It is to be noted that the Industrial Welfare Society of Great Britain is concerning itself with these war-time problems, acting voluntarily to speed up production, improve the conditions of workers, and simplify industrial dilemmas presented for consideration by co-operating groups. In the October, 1939, issue of *Industrial Welfare and Personnel Management*, its own publication, the Society offers, among subjects now under discussion on which assistance is available, the following:

LIGHTING: Black-out restrictions, which in many cases involved the most rapid rather than the most suitable measures, have brought serious problems in their train, not only for night workers, but, with the shortening hours of daylight, for day workers also. For example, in many cases skylights have had to be permanently darkened so that employees must work by artificial light. This involves the danger of injury to eyesight, increased fatigue and loss of output unless precautions are taken, and it may be necessary to rely more upon individual than upon general lighting. This is a subject the Society is investigating in conjunction with the organizations concerned with lighting.

John H. Finley, 1863–1940.—Workers for the blind, as well as those in the field of prevention, mourn the loss of Dr. John H. Finley, whose participation in both these fields was of incalculable value. The Executive Committee of the National Society for the Prevention of Blindness passed the following resolution in Dr. Finley's honor:

“In the death of Dr. John H. Finley, the movement for the prevention of blindness and the conservation of vision lost one of its most understanding and most effective advocates. Becoming a charter member in 1915 of the New York State Committee for the Prevention of Blindness, Dr. Finley maintained this connection until the Committee's dissolution, when he accepted appointment as an Honorary Vice-President of the national organization. Not only did he take an active personal interest in the campaign to protect eyesight, but his scholarly and inspiring editorials on this subject were read by thousands in the *New York Times*, the newspaper which he served for many years as editor and later as editor emeritus.

“Dr. Finley displayed early in life those qualities of character, intellect, and love of his fellow men which brought him a rich life, international recognition, and the affection of all who knew him. The National Society for the Prevention of Blindness expresses its appreciation of his stimulating leadership, and records with sorrow the loss of this valued associate.”

J. Howard Fell, 1880–1940.—In the death of Mr. J. Howard Fell, of William F. Fell Company, printers, the Society has lost a faithful friend and counsellor, as well as business associate. For many years Mr. Fell was the personal representative of his company, who gave his time and the benefit of his technical knowledge to help the Society present its printed material—especially as to visibility of type, selection of paper, and attractiveness of make-up. In the printing of the Society's publications, Mr. Fell built a monument which perpetuates his memory.

Current Article of Interest

The Prophylaxis of Ophthalmia Neonatorum with Silver Acetate, William F. Hartman, M.D. *The Pennsylvania Medical Journal*, February, 1940, published monthly by the Medical Society of the State of Pennsylvania, 230 State Street, Harrisburg, Pennsylvania. As indicated by the title, Dr. Hartman confines the present discussion exclusively to prophylaxis with one per cent silver acetate for cases of ophthalmia neonatorum in the newborn resulting from gonorrheal infection, and contrasts the results with those secured through employment of the classic silver nitrate technique. The arguments are presented that, in spite of the prestige attaching to the Credé method, gonorrheal ophthalmia still occurs; that one per cent silver nitrate solution causes a considerable incidence of conjunctival irritation; and that mistaken use of a silver nitrate solution stronger than one per cent might sometimes occur. Case records are cited, indicating the limitations and the traumatic potentialities of silver nitrate. Advantages of silver acetate are its low solubility (one per cent brings a solution to saturation, making overdosing impossible); and its formation of double silver compound and acetic acid when broken down—a much less irritating combination than that of the double salt and nitric acid formed by silver nitrate.

The author states that the Philadelphia Lying-In Hospital and Maternity Department of the Pennsylvania Hospital, by permission of the Pennsylvania Department of Health, has adopted the use of a fresh one per cent solution of silver acetate as prophylaxis for the eyes of newborn babies. One drop is instilled in each eye immediately after birth. Comparative figures are quoted which reveal the incidence (0.20 per cent) of ophthalmia neonatorum occurring in five Philadelphia hospitals allegedly employing the Credé technique stipulated by law, contrasted with a tabulation of results obtained by use of a one per cent silver acetate solution (0.09 per cent). The few cases represented by the latter figure all occurred immediately following the institution of the new procedure. Studies are now in process comparing the amount of chemical conjunctivitis resulting from the use of these two solutions.

Book Reviews

HYDROPTHALMIA OR CONGENITAL GLAUCOMA, Its Causes, Treatment, and Cure. J. Ringland Anderson. Foreword by Sir John Herbert Parsons. Cambridge: Published for the *British Journal of Ophthalmology* by the Cambridge University Press. New York: The Macmillan Company, 1939. 377 p. ill.

This book is the presentation of a single subject of a specialty in medicine. It is naturally, therefore, of primary importance to the ophthalmologist. Those, however, who are interested in the prevention of blindness will find it of value, if they are not at once submerged by a flood of Greek roots and derivatives.

When they have learned that "hydrophthalmia" is simply dropsy of the eye due to a stretching of the eyeball in early life or before birth until it has lost its normal form, and that "buphthalmos" or "ox eye" is due to an expansion of the front of the eyeball and is not compatible with fairly good sight, they are ready to begin with the glossary and will not find the subject so obscure as they had feared.

The last previous monograph written on infantile glaucoma that had any claim to completeness was by Dr. Emund L. Gros and was published forty-three years ago. It was entitled "Étude sur l'Hydrophthalmie ou Glaucome Infantile," and Sir John Parsons says, "It was an excellent résumé of our knowledge up to that date." Dr. Gros was not an eye specialist, but he later became the very distinguished head of the American Hospital in Paris. It is quite understandable why any pathologist should be interested in this malformation because it is so frequently associated with other involvements of the neurovascular and of the bony systems. Among the most common defects associated with infantile glaucoma are neurofibromata, hemiangiomas, facial naevi, retinal detachments, and other evidences of structural maldevelopment.

In the first chapter the author makes an important distinction in the nomenclature employed. "Of the many different names given in the past to the condition under discussion, 'hydrophthalmia' and 'buphthalmia' have been most widely used. A. Fuchs (1926) reserved the term 'buphthalmos' for the condition in which

an anterior staphyloma arises in infancy, and 'hydrophthalmos' for 'primary infantile (congenital) glaucoma.' . . . The eye of the bull does not suggest the failing vision or the raised tension which are essential features . . . In this work we use only the terms 'congenital glaucoma' and 'hydrophthalmia,' which will be considered as synonymous."

The hopelessness of accomplishing anything in a beneficial way for this condition is outlined in a conversation supposed to be held between the surgeon and the father of a young patient who for this defect had received a trephine operation a year before. The father inquires whether the boy would have had a better chance without the treatment. The surgeon answers, "I do not know." The father inquires further, "Do any untreated patients with this disease retain sufficient vision to enable them to earn their living for a few years?" The surgeon again says, "I do not know." The father asks once more, "If he marries, will his children be affected?" Again the surgeon answers, "I do not know." This agnostic attitude is probably for the purpose of discouraging too hopeful a view in regard to infantile hydrophthalmos, but it does not seem wholly warranted. Deductions may indeed be drawn in regard to individual cases. In the experience of the reviewer, a little girl of ten years, with infantile glaucoma which resulted in absolute blindness, suffered from such intense pain that enucleation of both bulbi became imperative. Forty years later a younger brother developed evidences of glaucoma. Today he is absolutely blind. May it not be fairly assumed that the "anlage" in the embryonic formation in the one case was so structurally defective that it was impossible for nature to elaborate a functioning organ from it? As the natural changes of presbyopia developed in the brother, that same limited structural stability manifested itself, though at a later period, and the consequence was, in the first instance, an unfinished and imperfect organ, deformed and unsightly, quite unfitted for the function of seeing; in the other, a limited structural life which reached its conclusion at an earlier period than in those who were more fortunate in their inheritance. In other words, the cyto-architectural plan in the one case went all wrong; in the other it was carried out for a limited time but then, not being basically sound, the tissues gave away under normal intraocular pressure.

The book which Dr. Anderson has given is full of important facts which make it of great value as a storehouse to be drawn upon. As the result of a questionnaire sent out to oculists generally, information was collected concerning 205 eyes of 116 patients. Eight hundred seventy-four forms were sent to 346 oculists living in 32 different countries, so that the conclusions aggregated may be considered to be fairly representative of the experience of ophthalmologists throughout the world. Happily, infantile glaucoma is a rare affliction. Among large numbers of patients, it occurs only once in many thousands of cases. According to Wright, who has seen a disproportionately large number of cases, many of these eyes are only moderately affected and they may function for many years. One is led to question, however, whether some of these simpler cases may not have been due to megalocornea, or enlargement of the front of the eyeball in which vision may, indeed, persist for years. India, it will be recalled, is the home of keratomalacia or softening of the cornea, which is due to malnutrition and which may be controlled by proper feeding, while infantile glaucoma is congenital and due to inherited defects. While the diagnosis, the course, the incidence, and the treatment of these conditions are quite different, the seeming resemblance in the enlargement of the eyeball has led to a confusion of terms in many clinics where they are employed interchangeably. Wright does not make this distinction as, in a recent article on glaucoma (*American Journal of Ophthalmology*, June, 1937), he says: "In my experience it is more difficult to establish effective leakage in hydrophthalmic or buphthalmic eyes than in other types of glaucoma." Buphthalmic eyes may become glaucomatous, but they have not primarily increased tension. The author has therefore done well in limiting the designation of the terms "hydrophthalmia" and "infantile glaucoma" to the congenital, which is a distinctive form of enlargement. The term "buphthalmos" should not be relinquished, as it describes a pathological condition that may not properly be excluded.

The author's studies in comparative anatomy are both interesting and instructive. He has had an opportunity of studying the histology of unusual forms of Australian life. These include a variety of the marsupials, among which are the native cat (*Dasyruys viverinus*), the ringtailed phalanger (*Pseudochirus*), the longtailed

phalanger (*Trichosurus*), the wombat (*Phascolomys*), and the gray kangaroo (*Macropus giganteus*). In many sections the ringtailed phalanger revealed a much cruder structure, and the native cat a more advanced one. Probably this is because the visual requirements of these creatures are quite different, some depending on their sense of smell more than on that of sight. In many sections, dense iris processes were found which separated the sinus from the angle. This is well marked in the wallaby (*Thylogale*), and is almost like a spur. The anatomic difference may have an ontogenic value in the construction of Schlemm's canal. These studies may be helpful in showing that in the development of the human eye, had the building blocks been sound and rightly placed, the ultimate structure would under stress prove more resistant.

Although it is not a happy piece of work to produce a volume that carries with it so little reason for hopefulness from operative or other procedures, the subject of operation is well considered and the different operations evaluated together with the results that might ultimately be looked for. No mention is made of Otto Barkan's new operative procedure, although this would seem to be one for which it might be applied. If, however, the degenerative changes are due to defective structure rather than a closure of Schlemm's canal, it is quite understandable why no operative measure can be successful.

Some cases of glaucoma in children are obviously due to certain malformations, of which the most common are aniridia and microphthalmia. "In aniridia, glaucoma is undoubtedly often caused by the union of the iris root and the posterior surface of the cornea. In microphthalmia, the narrowness of the circumlental space plays a part. As the finer changes which may hinder the function of the drainage channels are beyond our knowledge at present, our conceptions are largely hypothetical."

We obtain in this book the combined opinions of many skilled observers, and intelligent conclusions may be anticipated. The general reflections in the concluding chapter are thoughtful and judicious. Every surgeon will find the book a valuable addition to his library. The volume is printed on good paper but heavily leaded, which makes it somewhat inconvenient to handle. Extensive tables are placed in a pocket attached to the cover which add

to its value as a work of reference. The illustrations in black and white are very good.

—PARK LEWIS, M.D.

A MANUAL OF PRACTICAL ORTHOPTICS. G. H. Giles. London: The Hatton Press, 1938.

It is somewhat surprising that this book should have come out of England. It is largely a consideration of orthoptic apparatus and its applications, and in the discussion a major emphasis is laid upon the continental contributions (Cantonnet wrote the foreword), whereas the British Orthoptic Council and English authors of publications dealing with orthoptics usually have given the French instruments and the "mental effort" technic but scant attention.

Orthoptics in America largely follows the English pattern so that only occasionally do we see the separator, the diploscope, and the Pigeon-Cantonnet stereoscope used here.

Similarly little attention is paid by the author to careful refraction under atropine and the use of continued atropinization as adjuvants to orthoptic training. The point of view is largely what would be characterized as the optometric point of view in America.

The most serious divergence of opinion between the author and other teachers of orthoptics in England and America relates to abnormal retinal correspondence. The writer claims not to have found many cases in practice. Most other writers in this field are finding the condition more frequently as their experience and technical refinements grow, so that in many quarters it is believed that it can be demonstrated in almost every squinter of any considerable duration. I believe this is largely a matter of careful technic and that it would be quite impossible to demonstrate abnormal retinal correspondence on many provable cases if the only tests utilized were those made on the Cantonnet stereoscope. Even in using the major amblyoscopes the author does not, apparently, utilize those refinements in technic which the English school of orthoptics stresses emphatically, and he commits the unforgivable sin of permitting patients with anomalous correspondence to undertake home training. True, he states that "great care must be taken in home training that some false area is not being stimulated" (p. 74), but who is to take this care? It is very like urging them to eat

plenty of mushrooms but not the poison kind. Considerable technical knowledge is sometimes required to differentiate.

This Manual of Practical Orthoptics should be read by those interested in orthoptics primarily for the value it has as an Englishman's presentation of a French point of view. It very definitely should not be used as a teaching guide in training orthoptic technicians.

—LEGRAND H. HARDY, M.D.

Briefer Comments

SAFE DRIVING. J. R. Hamilton and L. L. Thurstone, M.E.Ph.C. New York: Doubleday, Doran & Company, Inc., 1937. 74 p.

This collaboration of a scientist and an advertising man presents a twofold view of the basic human limitations involved in automobile driving. Throughout the several chapters on Highway Driving, Traffic-Lane Driving, and Night Driving, Dr. Thurstone's scientific text is presented jointly with Mr. Hamilton's discussion, in simple lay terms comprehensible to every driver, of the same subjects. The basic material is confined solely to the definite human limitations affecting all motorists, and is predicated on analyses of accident causes resulting from an independent study conducted at the University of Chicago. Visual concentration in relation to speed; the effect of increased speed on the focal point; foreground and peripheral vision; perception of space and movement; and scotopic or night vision, are among the topics ably covered by one or both of the authors. The presentations of each are uniformly excellent, as are the simple diagrams and graphic camera studies selected as illustrations.

Books Received

DIRECTORY OF SOCIAL AGENCIES OF THE CITY OF NEW YORK, 1940. Anastasia H. Evans, Editor. New York: Columbia University Press, Publisher, 1939. 484 p.

PROCEEDINGS OF THE NATIONAL CONFERENCE OF SOCIAL WORK at the Sixty-Fifth Annual Session, Seattle, Washington, June 26-July 2, 1938. Chicago: The University of Chicago Press, for the National Conference of Social Work, 1939. 802 pp.

PRIMER OF ALLERGY, Warren T. Vaughan, M.D. St. Louis: The C. V. Mosby Company, 1939. 140 p. ill.

SAFETY PROGRAMS AND ACTIVITIES for Elementary and Junior High Schools, Florence Slown Hyde and Ruth Clara Slown. Chicago: Beckley-Cardy Company, 1939. 269 p. ill.

THE BASIC MECHANICS OF HUMAN VISION, R. Brooks Simpkins. Cleveland: The Sherwood Press, 1939. 228 p. ill.

PAPERS ON SOCIAL HYGIENE. New York Regional Conference on Social Hygiene, 1939. New York: New York Tuberculosis and Health Association, 1939. 127 p.

BRITISH STANDARD SPECIFICATION FOR SAFETY GLASS FOR LAND TRANSPORT, British Standards Institution, No. 857, 1939. London: The British Standards Institution, 1939. 30 pp.

THE 1939 YEAR BOOK OF EYE, EAR, NOSE and THROAT, edited by E. V. L. Brown, M.D., Louis Bothman, M.D., and Samuel J. Crowe, M.D. Chicago: The Year Book Publishers, Inc., 1939. 656 pp. ill.

HEALTH OFFICERS' MANUAL, J. C. Geiger, M.D. Philadelphia: W. B. Saunders Co., 1939. 148 pp. ill.

APPLIED ORTHOPTICS, S. Edwin Rudlin, B.A., O.D. Richmond, Virginia: The Dietz Press, 1939. 195 pp. ill.

TRANSACTIONS OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY, Seventy-Fifth Annual Meeting, Hot Springs, Virginia, 1939. Philadelphia: American Ophthalmological Society, 1939. 467 pp. ill.

THEORY AND PRACTICE OF ANALYTICAL REFRACTION AND ORTHOPTICS, Israel Dvorine, O.D., F.A.A.O. Baltimore: The Waverly Press, 1939.

YOUR COMMUNITY—Its Provision for Health, Education, Safety, Welfare, Joanna C. Colcord. New York: Russell Sage Foundation, 1939. 249 p.

Current Publications on Sight Conservation

Note.—The National Society for the Prevention of Blindness presents the most recent additions to its stock of publications. Except for the more expensive ones, single copies are sent free upon request. Unless otherwise specified, they are reprinted from *THE SIGHT-SAVING REVIEW*. New publications will be announced quarterly.

319. Guidance Material for Preparing Partially-Sighted Children for Effective Living, Margaret Soares. 12 p. 10 cts. Lists vocational guidance material helpful in planning favorable social and economic development of sight-saving class children. Reprinted from *The Sight-Saving Class Exchange*, February, 1940.

320. Leisure Time Activities for Partially-Seeing Children, Eva K. McCauley. 12 p. 10 cts. A study of the technique of developing in sight-saving class pupils habits, skills, interests, and appreciations suitable to their aims and abilities. Reprinted from *The Sight-Saving Class Exchange*, February, 1940.

321. Study of Vocations for the Partially Seeing, Elizabeth Hansen. 8 p. 5 cts. Suggests a sight-saving class study of possible occupations, listing agencies distributing vocational information. Reprints from *The Sight-Saving Class Exchange*, February, 1940.

322. Optimum Working Conditions for the Eye, C. E. Ferree, Ph.D., and G. Rand, Ph.D. 12 p. 10 cts. Recapitulation of conclusions after twenty-five years of research in the field of lighting and the eye.

323. Incidence and Distribution of Trachoma in the United States, Harry S. Gradle, M.D. 8 p. 5 cts. Racial and geographical distribution of the 60,000 trachomatous population.

324. The Ophthalmologist and the Sight-Saving Class Teacher in Conservation of Vision, Edmond L. Cooper, M.D. 12 p. 10 cts. Defines interrelationships of mutual problems of sight conservation in relation to sight-saving classes.

325. The Part the Doctor Can Play in the Prevention of Blindness, J. V. Cassady, M.D. 12 p. 10 cts. Discusses possibilities for conservation of vision committees of state medical societies.

326. What State Supervising Ophthalmologists are Doing in the Prevention of Blindness, V. M. Hicks, M.D. 8 p. 5 cts. Describes major problems related to local conditions in South Carolina.

327. Personal and Group Responsibility in Prevention of Blindness, C. E. Rice, M.D. 8 p. 5 cts. Appeal for acknowledgment of responsibility among citizens, parents, physicians and sight conservation agencies.

328. Relation of Eye Dominance and Prediction of Failure to Learn to Read, Marie W. Koblishe. 8 p. 5 cts. Study of significant factors in reading disability as related to eyedness. Reprinted from *The Sight-Saving Class Exchange*, April, 1940.

329. Prevention of Reading Difficulties, Erma G. Grill. 12 p. 10 cts. Survey of elements predisposing children to reading disability, with suggestions for a prevention program. Reprinted from *The Sight-Saving Class Exchange*, April, 1940.

D129. The Nurse in an Eye Health Program, Pearl McIver, R.N. 4 p. (\$1.00 per C; \$7.50 per M.) Discusses interdependence of eye health and general nutrition, emphasizing the function of public health nurses in prevention of blindness. A paper from the nursing education session of the Society's Annual Conference, 1939. Reprinted from *Public Health Nursing*, January, 1940.

D130. Teaching Eye Health to Student Nurses in Hospitals With and Without Eye Departments: 1. In a Hospital Having an Eye Department, Cora L. Shaw, R.N.; 2. In a Hospital Having No Eye De-

partment, Hedwig Toelle, R.N. 16 p. 10 cts. Papers presented during the nursing education session of the Society's 1939 Annual Conference. Reprinted from *The American Journal of Nursing*, February, 1940.

D131. Third Annual Summary of Fourth of July Injuries (1939). 8 p. (\$1.75 per C; \$14.50 per M.) The 1939 review by the American Medical Association of Fourth of July injuries reported in the United States. Reprinted from the *Journal of the American Medical Association*, January 6, 1940.

D132. A Program for Staff Education: Eye Health, Eleanor W. Mumford, R.N. A study outline of important aspects of eye health, stressing the desirability of integration with related health problems and programs. 16 p. 10 cts. Reprinted from *Public Health Nursing*, February, March, 1940.

D133. Nutrition as It Relates to the Eye, Arthur M. Yudkin, M.D. 8 p. 5 cts. Discussion of eye health in relation to diet deficiencies and faulty nutrition. A paper presented at the nursing education session of the Society's Annual Conference, 1939. Reprinted from *Public Health Nursing*, April, 1940.

Contributors to This Issue

Drs. Ferree and Rand of Baltimore are widely known to sight-saving groups for their outstanding scientific researches on the subject of lighting and the eyes. **THE SIGHT-SAVING REVIEW** welcomes this opportunity to publish their summary of conclusions drawn from a quarter-century of study.

Dr. Harry S. Gradle, a frequent contributor to our pages, is consulting ophthalmologist of the Indian Medical Service, and attending ophthalmic surgeon of the Michael Reese Hospital, Chicago.

A newcomer among **REVIEW** authors, **Dr. Edmond L. Cooper** is a practising ophthalmologist of Detroit, and a lecturer during the advanced sight-saving courses conducted in the summer of 1939 at Wayne University.

The survey presented in this issue of possibilities for service through state vision conservation committees was prepared by **Dr. J. V. Cassady**, ophthalmologist of South Bend, and chairman, committee on conservation of vision, of the Indiana State Medical Society.

Dr. V. M. Hicks, state supervising ophthalmologist of the Aid to the Blind Program, of Raleigh, North Carolina, writes with authority on this phase of the blindness prevention program.

An eloquent appeal for assumption of individual responsibility in sight conservation is voiced by **Dr. C. E. Rice**, consultant on blindness, Bureau of Public Assistance of the Social Security Board, Washington, D. C.

The Need and Opportunities for Prevention of Blindness and for Sight Conservation*

Moacyr E. Alvaro, M.D., and Eleanor Brown Merrill

COMMON problems of eye health link Brazil and the United States, and it is especially fortuitous to have a joint article by a representative of the national agency of each of these countries.

Prenatal and Hereditary Factors

The present century has taught us that the time to begin preventive work is long before the child is born. This is particularly true in the prevention of blindness. One of the major hazards to sight is syphilis, which may be transmitted from an infected mother to her unborn child. A blood test for every expectant mother, followed by the proper treatment when necessary, would save many children from impaired vision or blindness. In the United States, as of March, 1939, 26 states had passed laws requiring premarital health examinations to prevent the spread of syphilis, and four states required examination of expectant mothers to protect babies from this disease.

But not only syphilis is responsible for a comparatively large number of cases of blindness which may show sooner or later in life; there are some known hereditary diseases capable of destroying the sight and this fact should induce adequate legislation concerning the marriage of such people whose infirmities will probably be transmitted to their children.

Experiments have shown, too, that a diet rich in vitamin A, given to the expectant mother, is essential for the proper development of the visual apparatus.

* Read by Miss Sally Lucas Jean during the Good Will Cruise to Latin and South America, July 7–August 28, 1939, under the auspices of the World Federation of Education Associations, and published in excerpt form in the Section on Handicapped Children of the *Proceedings*.

Forceps extractions and other similar manoeuvres can easily traumatize the eye and impair one or several of its functions for life. Proper prenatal care will in many cases avoid the necessity for operative treatment.

Ophthalmia Neonatorum

The decrease in blindness from ophthalmia neonatorum in the United States is too well known for more than brief mention. At the present time, 45 states and the District of Columbia require that a prophylactic be used in the eyes of babies at birth to prevent this disease. In the thirty-one years of the lay movement for prevention of blindness in the United States, an unceasing campaign of public education has succeeded in reducing blindness from babies' sore eyes from 28.2 per cent to approximately 7 per cent among new admissions to schools and classes for the blind.

In Brazil, although some propaganda had already been made for the compulsory use of Cr  d  's method, only comparatively recently, in 1935, was the first decree officially adopted in the state of S  o Paulo. Later, in close succession, several other states adopted similar legislation and now, out of 22 units (states and territories), 15 have already made the Cr  d   method compulsory. It is rather interesting to mention the fact that recently the National Society for the Prevention of Blindness sent out a map to the governments of the several states which had not, so far, adopted the Cr  d   method. In that map the several states where the Cr  d   method was compulsory were shown in white, while the others were shown in black. This seems to have worked out very well as a means of propaganda, for in a short time four other states reported having adopted the use of prophylactic drops at birth.

It is quite essential that the Cr  d   method should be enforced in the whole of Brazil, for statistics show that ophthalmia neonatorum is responsible for about 40 per cent of all cases of blindness in children.

Infant and Preschool Life

Since sunlight, along with proper nutrition, determines the soundness and healthiness of the tissues of the infant's body, pediatricians regularly prescribe sun treatment for babies. Usually

they advise that sun baths be given before ten in the morning and after three in the afternoon, when the sun is not directly overhead and the eyes of the infant can be protected by pointing the feet away from the sun.

Adequate food, properly balanced and rich in vitamins, should be made available to every child; and the school teacher is in a privileged position to teach the child, or its parents, the proper way to eat, in the same way as she already teaches them elementary hygiene.

Cross-Eyes, Squint, Strabismus.—At birth the eyes of the baby work independently. When the eyes begin to follow movements, there is an effort to direct the gaze toward a moving object. This tendency is not evident much before the age of six weeks, but from that time on it should develop steadily. Normally, before the end of the first year of life, the habit of fixing the gaze of both eyes on the object of interest is well established. The power of blending or fusing images is developed in the visual centers of the brain and is necessary for the perception of depth in the single image. When no visual defects are present, the power of fusion proceeds normally throughout the earlier years of life, as does the co-ordination of muscles in walking and talking. Visual fusion should be well established at the age of six or seven years.

When a defect of vision is present, the development of fusion may be hampered and in time, usually before the age of four, one eye may turn in; when this tendency toward squint, or cross-eyes, is present, the importance of early correction is obvious. Decision as to method of treatment required for each case of squint can be determined only by a skilled ophthalmologist. The fact cannot be overstressed that the most satisfactory visual results are obtained when the child with cross-eyes—no matter how young—is placed under the care of an ophthalmologist as soon as the defect is discovered. Moreover, early care will do much to prevent the development of undesirable personality traits and unhealthy mental attitudes toward life so frequent in children with this condition who have been subjected to the jibes of playmates and the thoughtless remarks of adults.

Eye Accidents in Childhood.—The play material of children should be selected with a view toward the reduction of accident

hazards. Blocks with sharp corners, sharp-pointed knives, scissors, hooks, and sticks have no place in the play equipment of young children. Neither have fireworks nor toy pistols. Safety censorship over the play activities of the young child may be used not only to safeguard him from eye accidents, but also to guide him into the practice of safeguarding himself and others.

Infections and Contagious Diseases in Childhood.—The eyes of young children are much more susceptible to infection than are those of older children or adults. Hence it is important that any child with swollen, sticky, or inflamed eyelids, or with inflamed or running eyes, should be immediately separated from the other children and put under proper medical care. In children's diseases, such as measles, the doctor's instructions for eye care should be carefully followed.

Behaviors.—Sometimes, when children return to a group after a prolonged or serious illness, it may be apparent to the teacher that muscular energy is at a low ebb. Such children are usually protected from vigorous activities because of their evident lack of strength. It is well to remember that the eyes of the child are as much a part of the body as are the muscles of legs and arms. Like these large body muscles, the child's eyes, during convalescence, need protection from fatigue, and they should not be subjected to the strain of attempting to get clear images of nearby objects.

The alert teacher is in a strategic position to discover satisfactorily developing eye habits or to collect evidence which may indicate the need for examination by an eye physician. Through a simple vision test with the Symbol E chart, which any teacher may learn to use, she may gather further evidence of low vision in one eye, which in itself may be responsible for a tendency toward exclusive use of the other eye. She may also determine whether the child appears to have a limited range of vision. Moreover, from her experience with many children the teacher may observe the behavior of an individual child, and evaluate its significance in the light of what the rest of the children do. Reading difficulties which, according to statistics, occur in as many as 5,000,000 children in the United States alone, and where defective vision is almost always present to a smaller or larger extent, should enable the school teacher to spot the eye cases and have them duly examined by an

ophthalmic surgeon. It is essential, however, that the teacher of young children remember that, valuable as are her observations and the supporting evidence found in the results of a vision test, an examination by an ophthalmologist is the only real basis for judging the condition of the child's vision.

School Life

If teachers are to know how to guard the eyesight of their pupils, they must understand certain fundamental principles. The process of seeing is threefold: eyes with which to see; light by which to see; and the brain to interpret the message carried by light to it through the eyes. Too long have teachers been concerned chiefly with but one phase of education—interpretation; they are often oblivious to the fact that the brain cannot interpret clearly a garbled message.

The child with defective or seriously impaired vision is at a distinct disadvantage. With early discovery and correction of the remediable visual defects, however, his mental growth and development proceed at a rate that is remarkable in the light of the previous handicap. When the defect is not corrected until the child has acquired some of the undesirable physical, emotional, and social habits that seem to follow under the circumstances, he is faced with the need of making up for lost time. He is forced to work under the handicap of both poor study habits and personality traits, which might have been prevented by early correction of the defect.

Eye Examinations.—The best eye health program provides each child with a thorough eye examination and continuous supervision of the eyes. When examination under ophthalmological supervision is not possible, the responsibility of the classroom teacher and school nurse increases for detecting and routing for correction children with visual defects. Alertness in recognizing symptoms suggesting eye disorders is a valuable supplement to the routine vision inspection given by the school nurse or teacher. Interpreting the ophthalmological findings to the parents, and helping the child adjust to his visual defect, are further responsibilities of the teacher. The professional preparation of every teacher should include supervised experience in simple routine vision testing, and understanding of the significance and limitations of the results of the test.

Lighting.—Conservation of vision involves not only concern with

eye conditions, but also the provision of correct lighting, natural and artificial—adequate illumination which is well diffused and distributed without glare—in schools, colleges, universities, and libraries, as well as in homes and places of employment; of hygienic seats and desks, since posture affects sight; and of books printed in clear type, with proper regard for paper, spacing, etc. If eyestrain is to be avoided, careful consideration must be given to the position of blackboards, which should never be placed between windows because of too sharp contrasts, nor where reflection will cause glare.

Myopia.—The etiology of myopia is still in the dark, but some essential facts are already known which enable certain measures to be taken to prevent this refractive defect from progressing, or at least to check its getting continually worse. Shortsighted children should be immediately given proper care, not only compelling them to use adequate glasses, but looking after their posture in class and avoiding all possible eyestrain. Shortsighted children, even when the degree of myopia does not justify sending them to special sight-saving classes, should be given special consideration by the teacher.

Sight-Saving Classes.—A small number of children—approximately one in 1,000 to one in 500 of the school population in the United States—will be found who, because of their serious eye difficulties, cannot advantageously carry on their work under the best conditions provided for the normally seeing, yet who have enough sight to use their eyes as the principal medium of educational approach to the brain. The best manner of meeting this problem seems to be the establishment of sight-saving classes in the regular school systems. In general, children whose vision ranges between 20/200 and 20/70 in the better eye, after correction, as well as children suffering from progressive eye difficulties, are candidates for sight-saving classes. So much has been written regarding the physical set-up of the special classroom for partially-seeing children, and of the educational material for their use, that it would be repetitious to mention them here.

The work of the sight-saving class is co-ordinated with that of the regular grade. That requiring close use of the eyes is done in the sight-saving class under the guidance of a teacher specially trained in this work; the amount of eye use permissible is prescribed

by an ophthalmologist. Oral work, rote singing, choral speaking, etc., may be taken in the regular grade. The philosophy underlying sight-saving class teaching is to train the visually-handicapped child to make a normal adjustment to his visual handicap so that he may play a useful rôle in the world's work.

Trachoma

In countries where trachoma is prevalent, and especially in those where it is not complicated with ophthalmias which can rapidly destroy the eye if not properly treated—such as in most Latin American countries—the school teacher is a very important element in the general scheme of prophylaxis of this disease. School children should be systematically examined by an ophthalmologist equipped with a slit lamp, in order to find out all positive cases. These are then put under medical care, but the school teacher can easily co-operate in that treatment by actually putting the necessary drops into the children's eyes and, if adequately trained, can perform other treatments such as massaging, etc. The detection of trachoma in school children helps to find the familial focus; and the treatment of the child, the results of which are always exceedingly good, induces the rest of the family to think it worth while to seek treatment. In the several countries where this method has been adopted, i. e., the Argentine, Tunisia, etc., results of this prophylaxis system are excellent; in the Argentine province of Santiago del Estero over 30,000 people were duly treated during the past 10 years, and this treatment was responsible for a reduction by half of the percentage of trachoma in school children. The financial aspect of this method is worth considering, too, for the total expense entailed by the treatment of the 30,000 patients only came to about \$10,000 a year.

Study Facilities for College Students

By the time children have reached high school they should be prepared to assume, under guidance, some of the responsibility for their own eye health, and by college age the student should know just what the status of this vision is and how he may safeguard it. Otherwise, the heavy eye load during the early years of college life may result in strain and fatigue.

While light is by no means a substitute for ophthalmic care, its proper use is of major importance, as poor illumination may be a handicap even to the student with normal, healthy eyes. The student living in a college dormitory particularly should know what constitutes good illumination, since in this environment a large part of the responsibility for the discriminating selection and use of light rests upon the student himself. Even in colleges in which the administration provides good rooms and adequate lighting facilities, the arrangement of lamp and desk is left to the individual student.

That college students, even those in institutions preparing teachers, are not thoroughly grounded in the principles of eye hygiene would appear evident from surveys conducted several years ago in various sections of the United States. Responses to a test on the eye health problems of school children revealed that the senior students had limited information on this subject. Visits to a large number of institutions disclosed that conditions under which students worked, especially the study facilities, and the practices of the student health service in vision appraisal and supervision, were far from adequate. Further study of the situation made evident the need for an eye health program in institutions preparing teachers, so that graduates would be equipped with the necessary information and skills to meet their responsibilities for the eye health of children.

Efforts to develop such a program have since been undertaken with representatives of these institutions, of the official organization of medical directors of student health service in colleges, and of the three national ophthalmological associations in the United States. This joint action is concerned not only with the adequate preparation of prospective teachers, but also in extending knowledge of sight conservation and the prevention of blindness among teachers in service. When its objectives are accomplished, all teachers, from those in the nursery schools to those in colleges and universities, should be fully prepared to play their important rôle in saving sight.

Eyes in Adult Life

Habits of eye health acquired during childhood cling to the adult. Having been taught to safeguard his eyes while at play, at

sports, and in the school workshop or chemical laboratory, such a person will later appreciate the necessity for wearing goggles and other protective eye devices in occupations hazardous to sight, and for professional first aid when even a minor eye injury occurs. He will understand the importance of good lighting both at home and at work, and the desirability of wearing glasses when prescribed by an ophthalmologist. Even though he may never have needed glasses before, he will realize that some time in his forties the normal loss of accommodation will make it necessary for him to use them for close work. He will know that as mid-life approaches, periodic eye examinations are increasingly important, since glaucoma, cataract, and other diseases may attack the aging eye, and early discovery and treatment are imperative if sight is to be saved.

"Time Marches On" in Sight Conservation*

Ellice M. Alger, M.D.

"THE passage of time has abolished many of the once common causes of blindness," says the author, "but new dangers demand study."

IT IS human nature to take good health for granted until something goes obviously wrong. We are astonished when we become sick or are rejected for life insurance. Often we find we have some condition that ought to have been discovered long ago, or which might have been prevented entirely.

There is no state that seems more dreary or hopeless to us than being blind, but none of us expects to be blind. Nevertheless there are many more people than we suspect who are blind. There are thousands of others all about us who, unwittingly, are on their way. There are countless more who are neither blind nor likely to be blind, but who are missing much of life's joy or going through life on one cylinder because their eyes need the same sort of check-up they give their car or their watch or their teeth. The tragedy of it is that many of these troubles might have been prevented altogether. Others could have been arrested before they really got under way.

Beginnings of Medicine

From the most ancient times there have been physicians who devoted themselves to the care of the sick. They were keen observers who knew a lot about symptoms and results but almost nothing about disease itself. They lived—and often died—among their patients, while as a class they tried to live up to that oldest

* Address, under title "Let There Be Sight—The Prevention of Blindness," broadcast over Station WABC on October 18, 1939, under the auspices of the Medical Information Bureau of the New York Academy of Medicine.

and noblest of professional pledges, the oath of Hippocrates, which every medical neophyte takes to this day. Modern medicine really goes back little more than a hundred years. Before that time the physician made his living from attending childbirth and broken bones and typhoid and epidemic diseases rarely seen today. His diagnostic instruments were the stethoscope he carried in his silk hat and the thermometer in his vest pocket.

The surgeon was a "keen cutter," operating only because his patients could not stand the pain or because so many of them died. At his best the physician could only echo the phrase of the immortal Paré to his grateful patient, "I tended; God cured." Medicine was a noble art but not yet a science.

The eye physician was practically limited to diseases of the lids and external eye. He could see "pink eye," trachoma, ulcers and mature cataract readily enough, but as yet no one had ever looked at the inside of the living eye where its really important structures are. The textbooks spoke learnedly about amblyopia and amaurosis, which meant "poor sight" without any obvious cause. The specialists were almost all general surgeons who had the light hands and the delicate touch that made eye surgery possible. They knew as little about the eye as their colleagues did about the other organs of the body.

The modern mind is not any better than the ancient. Socrates and Aristotle and the old Greek philosophers still hold their ancient prestige, as do Alexander and Caesar and Napoleon and Shakespeare and Milton. But when Bacon and Descartes pointed the way to the "experimental method" the new era of science began. On it is based our entire modern civilization, though its cumulative growth sometimes threatens to outstrip our social control and destroy the very civilization it has created.

Under it medicine gradually became a real science and its practice a great art. About the middle of the last century its progress became notable and its frontiers were pushed forward further in 25 years than in all previously recorded time. The pace seems to be getting faster and faster. Every nation, every race, every religion was represented in this brotherhood of science, composed of men who seemed for a time at least to speak a common language and share a common humanity.

Medical Heroes

The young Frenchman, Pasteur, who was not a physician but a chemist, sought to answer some of the problems of his own people: why milk soured and wine spoiled; why cattle and sheep perished on a wholesale basis; why the bite of a mad dog was invariably fatal. He proved in the face of bitter opposition that there was no such thing as spontaneous generation; that there was a new order of microscopic life which accounted for many diseases. He showed how these germs could be segregated and grown like plants in a garden, and by judicious weakening used to prevent or cure the very diseases they caused. All we know of antisepsis, asepsis, immunity, toxins, antitoxins and vaccines, which are the foundation of modern medicine and surgery, stem back to him and his disciples. He was one of the great men of all time and one of the noblest.

The German, Koch, following the same trail, discovered the bacillus of tuberculosis and made the first crude tuberculin which he vainly hoped would cure it.

The Scotchman, Lister, applied the germ theory to surgery and showed the way to the antisepsis and asepsis which have transformed the hospital from a shambles into a haven of hope.

Neisser discovered the gonococcus, and Credé found that by putting a few drops of silver solution into the eyes of the newborn babe he could abolish a disease which caused some 20 per cent of all blindness.

Schaudinn discovered in the blood the corkscrew germ of syphilis, "the great pox," as it was called, a much greater plague than the smallpox ever was. Wassermann devised a reliable method of testing the blood and Ehrlich, after 606 experiments, hit on the salvarsan which destroyed the germ without killing the patient.

We now have at least the tools for abolishing a disease which has countless victims in every community, which may blind the innocent and the guilty alike, from the infant in his cradle to the paretic in his asylum.

Another German, Virchow, taught us to stain and examine very thin sections of tissue with the microscope and see how they looked in health and disease, which has revolutionized our knowledge of both physiology and pathology; and a Swede, Gullstrand, devised a method by which microscopy could be applied to the living eye.

Morton, in America, and Simpson, in Scotland, gave us ether and chloroform which abolished the agonies of surgery and obstetrics. Carl Koller, an Austrian born, who has practiced all his life in New York, discovered cocaine, which, with its substitutes, produces the "local anesthesia" under which we can operate without hurry and without pain. It has enormously increased the possibilities of eye surgery.

Billings, in Chicago, showed that unsuspected infections of our teeth and tonsils were common causes of troubles elsewhere: the eye, the heart, the brain.

Progress and New Problems

We have developed the theory of allergy, which in practice means that one man's meat may be another man's poison. It accounts for such varied symptoms as hives, hay fever and asthma, and includes a good many eye conditions as well.

The discovery of vitamins now explains the age-old reputation of cod liver oil. New vitamins appear almost faster than we can keep track of them and they are used as selling inducements for everything from chewing gum to skim milk. Nevertheless they open a vast field for exploration. We know they play a part in night blindness and suspect they may be factors in many nutritive conditions that we have hitherto called "senile."

We are now investigating an entirely new field, that of the viruses. They certainly exist, though they are way beyond the reach of our microscope. Apparently they are the solution of our age-old eye problem of trachoma, which becomes epidemic in the filth and malnutrition of every war-torn age. Fortunately modern chemistry, among its numberless contributions to medicine, has just given us sulfanilamide, which promises as much for trachoma as it does for pneumonia and the other acute infections.

Milestones in Sight Conservation

The German, Helmholtz, invented the first crude ophthalmoscope and so made it possible to see the inside of the living eye, which no man had ever seen before. It is now possible to study the beginning and progress of high blood pressure, cataract, glaucoma, optic atrophy and a host of other anomalies. We can even tell

much about the condition of the brain itself, for the retina is but an expanded portion of that brain. It was the greatest forward step ever made in ophthalmology for it made possible diagnosis, which is the foundation of all intelligent prevention and treatment. Every physician is taught to use it but proficiency comes only with long practice, while vast experience and judgment are needed to interpret its findings.

Donders, a Dutchman, systematized the refraction of the eye and made it possible for the patient to have his glasses fitted intelligently. Later on it was discovered that glasses not only could improve vision but relieve strain and so abolish the pain and nervous symptoms of thousands who thought there was nothing the matter with their eyes because their vision was so keen.

The New Yorker, Stevens, investigated anew the action of the muscles which enable us to use our eyes together. He laid the foundation for the elimination of one of the great causes of eyestrain which is popularly known as "muscle trouble." It marked the beginning of a new era in the study and treatment of cross-eyes.

When Edison first invented the crude incandescent bulb, he made it possible to measure, direct and control the light under which we often spend half our waking hours. The modern illuminating engineer is no mere merchant of light but a scientist who is making a vast contribution to ocular health and efficiency.

Neither must we forget what we owe to the makers of glass and the grinders of lenses. The telescope has made us masters of the infinitely far and the microscope of the infinitely small. They have made it possible for most of us to function in our modern industrial civilization for an extra quarter of a century; to see well and to see easily. Glasses are perfectly susceptible of mass production, and aside from the over-emphasis on frames and fashion would be within reach of the poorest. The science of medicine is today being developed in the modern research laboratory, often by men who are not physicians. Sometimes they have no idea that their discoveries, like radium or the x-ray, have any relation to medicine.

Modern Medical Practice

Each forward step in medical science has led and will lead to countless others, and we are long past the time when any one mind

can master it all. The eye physician specializes in a comparatively small field but his fundamental training is identical with that of other physicians. He can adapt much of their work to his own field and he has much to contribute to the common fund of knowledge.

The art of medicine is learned in the hospital and the clinic. Here the physician puts into practice what he has learned in the school and the laboratory under the guidance of his elders. Here he sees a mass of material, the rare cases, the difficult operations. Here he acquires diagnostic ability and operative skill and finally the good judgment which alone makes them safe. Here he sees and serves, in his lifetime, countless thousands of the poor and the unfortunate, without money and without price. He is infinitely better trained and more competent than his elders were at his age. He has a mass of diagnostic instruments and laboratory aids of which they never dreamed.

The passage of time has abolished many of the once common causes of blindness. Smallpox is seldom seen. Babies' sore eyes, which once filled our asylums for the blind, is becoming a rarity. The industrial accidents and poisonings which were once so common are becoming rare, but new dangers demand study. Trachoma has been practically eliminated except in certain backward sections of the west and south and among our Indian wards. We can see the end of syphilis, the great imitator and the great destroyer. Today people live twice as long as they did a hundred years ago, and middle life and old age bring new problems: cataract, glaucoma, hardening of the arteries, retinal diseases.

The Need for Public Education on Eye Care

So far the general public has not gotten anything like the benefit it should from our increase in medical knowledge. It still believes, as it did a hundred years ago, that any good druggist must be a fair doctor, and that anyone who sells glasses can examine the eyes. It never can keep clear in its own mind the difference between optician and optometrist and oculist (as it still calls the eye physician). It still believes that sharp eyes mean good eyes, and its first instinct when its eyes go wrong is to try somebody's eyeglasses or magic eye drops.

It is just as important to have an occasional competent exami-

nation of the eyes as of the heart or lungs or kidneys. It should at least be done on first going to school, before choosing a business or profession, in middle life and again as we grow older. There are not enough eye physicians in the world to do a fraction of this work.

In our large cities, crowded with hospitals and clinics and doctors, it is possible to secure adequate diagnosis and treatment for rich and poor alike. But in the small towns and the country half our people live in a fool's paradise. In some communities there is no one who can tell them certainly whether their eyes are well or diseased. There is no one who can prescribe intelligently for them and there is no place where they can secure even emergency treatment for ocular illness or accident. We need more physicians. We need more hospitals, but they will come only when our public really feels this need.

The Attitude of the Social Security Board Toward Prevention of Blindness*

Ruth O. Blakeslee

DISCUSSES the Social Security Board's part in prevention of blindness, and presents the recommendations made to state agencies administering aid to the blind.

THE subject assigned for this paper is one which presents broad and manifold ramifications, for the Social Security Board has approached the problem not only as an administrative body with specific responsibilities, but also as a citizen group with a general responsibility toward the problem as a whole. As an administrative body the Board must operate within the limits of the authorities with which it is vested, and of the funds at its disposal.

Administrative and Co-operative Services

The provisions of the Federal Social Security Act limit the use of federal funds for medical care to: first, administrative services, such as the examination of applicants for aid to the blind; the review and supervision of the examination process, and such research as may be done; and, second, to such payment for medical services as the recipient of aid to the blind may choose to make from his unconditional assistance payment. The amount of federal matching with respect to an assistance payment is limited to \$40. The recipient may not be *required* to use his assistance payment for any particular purpose and federal funds under title X may not be used by the agency to pay for medical, surgical, or hospital care.

As a citizen group, however, the Board recognized that by relating efforts within a limited area to active forces dealing with the

* Presented at the National Conference of Social Work, Grand Rapids, Michigan, May 28, 1940.

same problem, accomplishment might be possible beyond that to be achieved by individual effort. The Board has sought, therefore, to contribute to the general development of a vital and growing movement that had been carried on for many years by organizations such as that sponsoring this program, as well as to exercise leadership in the more limited possibilities under title X of the Social Security Act.

One of the first steps taken by the Board was to arrange for the assistance of Miss Audrey Hayden in planning the Aid to the Blind program. During her period of service with the Board, Miss Hayden prepared a monograph on "Outline of Program on Prevention of Blindness," the opening sentence of which may give some indication of the scope of the interest of the Social Security Board in the problem of blindness.

"This skeleton of a program for prevention of blindness is presented to the workers of the Social Security Board in order that they may become aware of the fact that the problem of the blind in the United States cannot be solved merely from the isolated standpoint of Public Assistance. The prevention of the condition which necessitates Public Assistance is the proper scientific approach to the situation."¹

Prevention of Blindness Aims

This is more than an idle statement of philosophy; it is a statement of active interest in a total problem that transcends the immediate responsibility for an assigned task. This interest has found expression in publications and recommendations transmitted through the field staff to the states concerning activities not always seen as relating directly to the prevention of blindness, and in the day-to-day contacts of official and unofficial nature. Some of these suggestions are as follows:

Verification of age as a condition of eligibility for Aid to Dependent Children or Old-Age Assistance brings the welfare agency into contact with the Bureau of Vital Statistics and affords an opportunity to review with appropriate state authorities the system for reporting and checking on the use of prophylaxis in the eyes of newborn babies. The determination of mental or physical in-

¹ Hayden, Audrey, "Outline of a Program on Prevention of Blindness." Bureau of Public Assistance Circular No. 2.

capacity of parents eligible to receive Aid to Dependent Children, as well as health care for recipients of public assistance, includes: prenatal and postnatal care, immunization of the growing child against communicable disease, periodic health examination, including eye examination for adults and children, with adequate provision of treatment. Adequate housing standards provide protected and supervised play places where children may be protected from eye and other injury. Surveys to locate blind persons without regard to their eligibility for public assistance, and of treatment facilities within a state or community, have been planned. In several instances co-operation of other federal and voluntary agencies has been enlisted to undertake studies or to make funds or personnel available to enterprises in which the Board could not participate financially. Information has been passed on to other governmental or voluntary agencies where it might contribute to the development of active interest in the field of prevention of blindness as a whole.

Time has been taken to discuss these activities because of the importance of recalling that practically every social service has direct or indirect relation to the prevention of blindness. Many opportunities are offered to the person engaged in the social services to contribute to the materialization of a better and broader program for prevention of blindness, and none of these opportunities, however small, can we afford to lose. The accomplishment of a single act may seem insignificant but that act may add to the gathering interest in the problem, and the alignment with a scattered or discouraged support may well outweigh its practical results.

Practical Steps in Blindness Prevention

Co-operation is a word I hesitate to use because it has become something of a shibboleth. We talk of "integration," "co-ordination," and "co-operation," and just last week I was told that these three words were obsolete and the present term is "unification." Too often one finds that a definition of co-operation once given as "co-operation is a situation in which one agency coos and the other operates" is all too true. Prevention of blindness is not the problem of any one agency, however; rather it is the responsibility of every

citizen, every organization, every professional person, and can be promoted only by continuous teamwork.

The Social Security Board has attempted to take some practical steps toward providing an adequate framework within which to study and deal intelligently with this problem of blindness. In the early days of administration of Public Assistance, the Board asked the office of the Surgeon General to detail to the Bureau of Public Assistance the services of a competent ophthalmologist to give direction to the medical aspects of the assistance program. For four years Dr. C. E. Rice has been working with the Board and, by arrangement of the field representatives of the Bureau of Public Assistance, consulting with the states on their problems and their methods of work. In addition, he has maintained contacts with the U. S. Public Health Service, the medical staff of the Children's Bureau, and Farm Security Administration, and with members of the medical profession, bringing to the Bureau of Public Assistance the benefits of advice and experience far beyond that which would be possible without professional service in this area. The use of a medical officer to direct the medical aspects of the program and the joint use of the same service in a contiguous field may commend itself to state or local agencies concerned with similar responsibilities. The statement of "Principles of Organization and Administration,"¹ of medical care approved by the Board of Directors of the American Public Welfare Association in December, 1939, may give further guidance to a state considering a similar project.

A third significant step was taken by the Social Security Board in November, 1936, when the requirement was made that the states adopt a definition of blindness in terms of ophthalmic measurement, provide as a part of administrative cost for an examination by an ophthalmologist or physician skilled in diseases of the eye, prescribe forms for reporting on eye examination to contain certain minimum information, and to assure a review and approval of report forms by a supervising ophthalmologist.²

This definition and report form were drafted after extensive consultation with federal and voluntary agencies and members of the medical profession:

¹ "Medical Care—and How." *Survey Midmonthly*, January, 1940.

² P.A. 701 and 701A.

“In general, central visual acuity of 20/200 or less in the better eye with correcting glasses is considered as economic blindness. An individual with a central visual acuity of 20/200 can identify a standard object (the Snellen test character) at a distance of 20 feet, while an individual with normal vision can identify the same object at a distance of 200 feet.

“An individual with central visual acuity of more than 20/200 in the better eye with proper correction is usually not considered blind unless there is a field defect in which the peripheral field has contracted to such an extent that the widest diameter of visual field subtends an angular distance no greater than 20 degrees.”

The examination procedure was required for immediate purposes only on persons whose applications were accepted after December 1, 1936, or refused after that date on medical grounds. Adequate time was allowed to arrange and pay for examinations on persons whose applications had been accepted before that time.

This step is familiar to you all, but it marks an important development in treatment and prevention of blindness because it resulted not only in a basis for competent medical guidance in a medical plan, possible benefits to individual blind or near-blind persons, support by the medical profession, and protection to the taxpayer, but provided for the first time accurate, objective, and comparable data on the conditions and causes of blindness for a substantial proportion of the blind in the United States. Not all of the states adopted the definition of blindness recommended by the Social Security Board. Of the 43 jurisdictions that have administered plans for aid to the blind approved by the Social Security Board, 16 have adopted the definition as suggested, 5 have omitted visual field defect, 19 have provided 20/200 visual acuity and adopted a general statement on visual field defect, 2 have accepted 10/200 visual acuity, and one has adopted a percentage reduction in normal vision. These variations do not detract substantially from the value of the data recorded on examination reports, and do, we believe, reflect a wholesome amount of determinism exercised by the states under competent medical advice.

The State Supervising Ophthalmologist

The services of supervising ophthalmologists have been obtained by the states in a variety of ways—by employment of full or part-

time paid medical officers, by borrowing from another public department, by volunteer services, or by use of an advisory committee directing the work of an agency staff member. The services of supervising ophthalmologists in the states have resulted in marked improvement in the recording of medical findings by local ophthalmologists. Particularly where the supervising ophthalmologist worked with a medical advisory committee has there been a great stimulus to interest in restoration of sight and study and treatment of causes of blindness.

The task of relating the work of a supervising ophthalmologist to the general work of an agency whose primary function is not that of medical care, and to the individual representatives of the medical profession who participate in the program, is not an easy one. Many of the ophthalmologists have found it difficult to return examination records to examining physicians for further information, to establish adequate fee schedules, to authorize re-examination by a more competent examiner, to take sufficient time to interpret to a new examining physician his contribution in the medical determination of blindness, or to accept the continued frustration of lack of funds to provide remedial treatment. But these problems are declining in proportion through the experience of working together with the assistance agency and associated groups. It is hoped that the work of the supervising ophthalmologist will be greatly facilitated with the establishing of adequate classification plans under the merit systems in state agencies, and with the 50 per cent federal matching of administrative costs under the 1939 amendment to the Social Security Act. Even more important perhaps to the clarification of the functions of the supervising ophthalmologist in the assistance agency is the experience of three years of working together of the agency staff and the profound interest and respect for the contribution of each that has developed between physician and social worker in most states.

Operations of Advisory Committees

The work of the supervising ophthalmologist has generally been found to be more effective where he has worked in conjunction with a carefully selected advisory committee. In general, these committees operate to:

1. Review and approve medical aspects of policies and procedures before adoption by the agency.
2. Study the qualifications of physicians engaged in treatment of diseases of the eye throughout the state, and recommend objective standards to be used in admitting physicians to participate in the program.
3. Review the applications of physicians desiring to participate in the program and recommend acceptance or rejection of applications, and to decide which of the participating physicians may do surgery.
4. Recommend for adoption by the agency fee schedules for payment for services, both professional and hospital.
5. Advise on difficult decisions where the agency or the applicant is reluctant to accept the diagnosis or report on examination.
6. Contribute to the knowledge and understanding of supervisory and investigating staff of the agency with respect to medical aspects of blindness.
7. Advise on studies or research projects.
8. Evaluate experimental projects in the field of health care.
9. Further co-ordination of health and welfare activities in the community.
10. Interpret the health aspects of the medical program to the medical profession and to the community at large.

It is interesting to note the progress that has been made in sight restoration and prevention of blindness in states where there has been good medical direction. It is understandable that since the people who come to the attention of the Public Assistance agency are, or believe themselves to be, blind, the first excursions into the field of medical care in the administration of public assistance are directed toward the restoration of sight. Recommendations of local examiners indicate that approximately 15 per cent of the persons found eligible for aid to the blind might have vision restored.¹ In 20 states without federal funds other than those used for payment for examinations or assistance grants, sight restoration programs are progressing. The transition between active interest in remedial treatment and preventive work is easily made, however, and once a state begins to do something about restoring sight, the interest in preventive work follows naturally and inevitably. The

¹ Field reports of Dr. C. E. Rice, Consultant to the Social Security Board.

following developments are illustrative of those going on throughout the country:

In one state the examination of persons discharged from the school for the blind, who applied for aid to the blind, led to the extension of the examination service to applicants for admission to the school and, ultimately, to a more adequate eye examination for pupils in the public schools and the establishment of sight-saving classes.

In another state it was necessary to transport an ophthalmologist to a remote section of the state to make eye examinations of applicants for aid to the blind. On a return visit sufficient community interest had been aroused to arrange, under sponsorship of a service club, to open the examination service to others than applicants for aid to the blind and to bring in patients to the examining center.

In still another state the committee in co-operation with the departments of health and education and the medical society introduced a plan for demonstrating the need and practicability of general eye clinics in rural areas which were later carried on and financed by the state health department.

In another, a well-advertised community clinic was held in which a substantial amount of trachoma was found. A co-operative project for the treatment of trachoma was set up with the state health department which, after an experimental period, will probably be taken over and extended by the health department.

In several states the supervising ophthalmologist is now serving as consultant in the health department on some phase of preventive work or in general eye clinics in remote areas.

States' Initiative in Co-operation

In the states that know their problem and have conviction that something must be done about it, resourcefulness and determination are providing a beginning of constructive effort, as one state monthly magazine says:

“ . . . Sufficient funds and facilities are probably available at present to provide eye treatment for all persons who are unable to secure them with their own resources and who offer reasonable hope of profiting by treatment. This service is available, not only to those who are already blind, but also

to those who are in danger of becoming blind without treatment. . . . The Welfare Act limits the eye treatment program to adults so that in the case of children with visual defects other resources must be found If the child is a recipient of aid to dependent children and is not receiving the maximum award under the law, it is sometimes possible for the county welfare department to increase the grant to take care of medical expenses for eye treatment. If the county department is already giving the maximum award, the child must look to some other source for eye treatment Each county welfare department also has a 'sick child' fund which can be used by court action to finance the hospitalization of any needy child requiring eye treatment."¹

The interest, the intent, and the initiative shown by the state in making the most of the facilities at its disposal are challenging indeed.

One state administrator said to me:

"Nothing that has happened in my eight years of administration of this agency has served to win public sympathy and change the temper of a hostile legislature as did the information that five persons who had formerly been blind were walking down the streets of the state capital with their sight restored."

Understanding of Causes of Blindness

Knowledge about the blind seems in truth to be a spur to purposeful and constructive action. Therefore, the next step logically seems to be an attempt to make available to the states and to federal agencies more knowledge about the causes of blindness.

Immediately following the preparation of the standard definition and the form for reporting on eye examination, the Board asked the Committee on Statistics of the Blind to work co-operatively on a classification of causes of blindness. The need for such a classification to supplement the original report on eye examination of the Committee on Statistics of the Blind, on which the Social Security Board form was based, had long been recognized. Experimental work was begun in this area by the Committee on Statistics of the Blind six years ago. The task of developing such a classification, however, was an arduous one and involved an amount

¹ *Public Welfare in Indiana*. Vol. 1, No. 3. Series 265. March, 1940.

of detail work difficult to achieve through a voluntary committee. The Committee on Statistics of the Blind, in co-operation with voluntary and public agencies and members of the medical profession, has made use of the knowledge and skills of physicians and social research personnel; and prepared a preliminary classification which was published in *The Outlook for the Blind*, April, 1933.¹ This classification has since been revised on the basis of experimental use. The same agencies have been working co-operatively on a manual of instructions to implement its use.

It is hoped that some study of the causes of blindness may be undertaken in the near future in states where a substantial proportion of the examination records are adequate and complete. Approximately twenty-five states have already indicated interest in analyzing their records according to the classification. Research of this nature should serve to improve the quality of examinations and the adequacy of reports; to produce significant information as to the causes of blindness in general, and the special problems in particular communities; and to provide impetus to the use of existing resources or development of new facilities for remedial and preventive work. The 1939 amendment to the Social Security Act which requires that after July 1, 1941, each state shall establish adequate safeguards to protect the privileged and confidential nature of public assistance records, should also serve to improve the quality of medical reports—particularly where the cause of blindness is a venereal disease. It is hoped, of course, that additional funds may be made available for remedial treatment and preventive work, because of the manifold evidence that where interest has been aroused and adequate and accurate information is available, the interests of the blind or near-blind will be served by the provision of better tools with which to work.

I do not want to give the impression that the Social Security Board seeks or deserves any special credit for the development of the classification of causes of blindness, or the planning for its use. The work was begun before the Board came into existence. Much of the detail has been carried on by voluntary agencies who first conceived the plan. Mr. Ralph G. Hurlin and Miss C. Edith Kerby of the Committee on Statistics of the Blind, particularly

¹ "Classification of Causes of Blindness." *The Outlook for the Blind*, April, 1933.

have given unstintingly of their time and energy in the development of the classification and the testing of its practicability. Had it been necessary or desirable to undertake independent responsibility for the development of adequate tools for dealing with the problem, I believe that the interest of the Social Security Board would have been sufficient to finance and carry out the necessary steps. It is far more important, however, that there has been recognition of the fact that the cumulative results of co-operative efforts have been more than the sum of accomplishment of individual agencies. The results have been more far-reaching, and the prospects for future achievement more promising, than if any of the public or voluntary agencies had been dominated by vested interest or concerned with credit for whatever success the future may hold.

Significance of Co-ordinated Efforts

This accord in defining objectives of the program and acting to achieve them has special significance to an agency dealing with a problem of so many facets. Everything that each of us can do is important to the prevention of blindness. Because of the immediate contact of the public assistance agency with blind persons, and of the deep-seated interest in prevention of the tragedy of blindness, occasionally there is failure by such agencies to recognize the contribution from schools, physicians, health departments, public or voluntary agencies, to alleviation of the same problem, and to include them in the plans and procedures of the agency. No incidence of interest in the prevention of blindness can be allowed to die or dry up! The efforts of every interested individual and agency are needed to promote a program! In many areas, health and educational agencies are reluctant for various reasons to undertake responsibilities that will contribute to the prevention of blindness. In such instances the public assistance agency may need to undertake demonstration work to show what can be done. After the initial period, latent interest of departments or agencies whose functions and facilities are more adequately suited to the continuance of the preventive work may be aroused, and it may be important at that point to turn over to the appropriate agency a

service or function that has been initiated by a public assistance department.

Vested interest, pride of accomplishment, ambition for the future, may make this difficult but it can and should be done. For example, one state of which I know discovered through its examination records of applicants for Aid to the Blind the existence of a startling amount of trachoma. A co-operative project with the health department was initiated for the treatment of trachoma with sulfanilamide and its derivatives by a traveling clinic financed by the public welfare department with the assistance of local health personnel. The examination and prescribing of treatment proceeded according to plans but, for lack of funds, close supervision of treatment was impossible. After the next meeting of the legislature the health department was provided with adequate funds to carry out examination and diagnostic services, and to provide the necessary supervision to individual patients under treatment. The welfare department had not only become intensely interested in the program, but had received considerable acclaim from the community for its efforts. Be it said to the everlasting credit of both health and welfare departments, however, the total program was turned over to the health department and the services extended to persons who were not yet blind or not in need of public assistance.

Conservation in many areas means avoidance of waste. To the worker with the visually handicapped, however, it means not only the protection of remaining vision of a handicapped person, but active service to increase the amount and make constructive use of what vision remains. Conservation of interest and energy present a challenge for the use of the same dynamic interpretation of the word conservation. It is hoped, therefore, that state agencies working with the blind will make active use of existing facilities within the state, will carry on experimental and demonstration projects under proper direction where appropriate facilities do not exist or cannot be immediately developed in health agencies, and will transfer successful projects to agencies where they can be extended in coverage or improved in quality as soon as it can be determined that such transfer would be advantageous to the interest of blind persons or of those threatened with blindness. This is teamwork of the highest order.

Approaching the Problem of the Blind

The Social Security Board is actively concerned with the problems of individual blind or near-blind persons as well as with the broader aspects of community action. Mary Dranga Campbell, in an appreciation of Mervyn Sinclair of the Pennsylvania State Council for the Blind, published after his death, has quoted his reply to the question: "Upon what does successful work with the blind depend?" Mr. Sinclair, who had himself become blind through accident in middle life, said:

"First, upon an organization—experienced, vigilant, competently staffed. Second, upon individuals who support such organizations for the good of the community, and out of simple regard for others. Third, upon an informed public opinion which knows that the blind man is not an object of pity, but a human being—to be loved, trained to be self-supporting, educated, given medical treatment, and taught to live with himself and others cheerfully, intelligently, and courageously!"¹

In medieval days the blind man was "considered a holy man and allowed to beg." Contemporary treatment of the blind must be characterized by no such mingling of awe and pity, but must be based on understanding of the particular problems of the blind person that arise from both his physical limitations and his life experiences. This understanding must serve to develop the agency procedures; to adapt the skills of social case work used in dealing with the individual; and to permeate the entire community with a constructive and responsible attitude toward the blind individual.² Aggressive support of a program for sight restoration and prevention of blindness is highly commendable. But an over-zealous attack on the community problem that applies punitive or restrictive measures to dealing with blind individuals and attempts to force acceptance of remedial treatment by refusing to give assistance to persons who do not avail themselves of opportunities for medical care, is both shortsighted and ineffectual. This is not maudlin sympathy. The writings of Meyer and White have expounded fully

¹ *Outlook for the Blind*. February, 1940.

² In seven states the public assistance agency is prohibited from giving assistance to an individual who refuses medical care, in five states the denial of assistance under such conditions is optional, and in seven states an individual who is in need of continuing hospital care is precluded from receiving assistance.

on the relation of sensory integration to the ability of the individual to face realistically and deal effectively with his own problems. One authority has recently written:

“As long as mental health is confused with purely mental functioning, the problem of education will remain unsolved. The wholesome personality as an expression of the total organism involves integration of physical and mental processes. Education that places an increasingly greater emphasis upon sensory levels—that aims at behavior as well as mentation, conduct as well as introspection, and doing as well as feeling—is achieving most practical and satisfactory results in method and outcome.”¹

The blind person lives in a realm in which his sensory experiences are limited. His adjustment may be to withdraw, to seek through fantasy or imagination the outlets he cannot achieve through visual experience, or he may be taught and helped to compensate in more productive ways for the limitations imposed by his handicap. We, all of us, have some dread of surgical or drastic medical treatment. Sir James MacKenzie is reputed to have said: “I recognize that practically every patient who consulted me wanted to know, not what ailed him, but what was to be the outcome of his complaint.” The peculiar susceptibilities of the blind person to anxieties may be increased when he is faced with the problem of accepting surgical care. He runs not only the ordinary risk in undergoing operative treatment, he takes a risk of losing what vision he may have retained. Where such drastic medical treatment is not indicated he may be bogged down in the inertia of despair and detachment that have grown out of his particular adjustment to a difficult life experience. His problem is very real. Force or punishment will not alleviate that problem. Methods that are or seem to him to be harsh or unjust may offset the benefits of medical treatment and create new personal problems in an already complex situation. The approach to helping the blind individual to avail himself or opportunities for medical care is through the use of the most skillful case work service over a period of time—time in which to become accustomed to the idea of risking change, for any alteration in familiar surroundings or customary activities is a greater adventure to the

¹ Davis, John Eisele. “The Sensory Levels of Hygienic Integration.” *Mental Hygiene*, Vol. XXIV, No. 1. January, 1940.

person without vision—and time to permit a gradual excursion into physical activity in less hazardous ventures. In the treatment of mental patients it has frequently been found that there is value in the psychological aspect of the therapeutic use of sensory levels of experience. The patient who touches an object purposefully comes into direct contact with reality. His behavior, after he has developed some sustained interest in simple activities, is frequently less easily disrupted by his anxieties or his hallucinations. Timid and distracted individuals become more confident and more aggressive in their mental and physical relationships.¹

With the blind person who is reluctant or unwilling to accept remedial treatment, neither force nor unrealistic promises for the outcome of such treatment are effective. Results may be achieved through careful planning of participation in simple everyday activities in his immediate environment. Gradually, as he develops confidence in himself, his fears may diminish and his adjustment to a wholesome behavior development may increase. He may then not only accept but seek out the medical services that were dreadful to him in prospect at an earlier date.

Provisions Covering Ophthalmological and Other Assistances

The blind person who is to undergo treatment needs to be assured that he will not immediately become ineligible for public assistance when he enters a hospital. The Federal Social Security Act prohibits the matching of assistance made to an inmate of a public institution. The Social Security Board has interpreted this to mean that an individual who enters a public institution for temporary medical, surgical, or convalescent care does not become ineligible for public assistance for a reasonable period if medical reports indicate that a plan of treatment is progressing. The Federal Social Security Act likewise places a maximum of \$40 on the assistance payment matched from federal funds, and does not permit the use of federal monies by the state agency to pay for treatment. No state is specifically precluded by state law from giving medical care: 27 states have authority to give special assistance for medical care although not all of them have funds for this purpose. Twelve states have no maximum assistance grant; 20 states have a maxi-

¹ Davis, John Eisele, *op. cit.*

mum grant of \$30; 3 states have a maximum grant of less than \$30; 8 have a specified maximum grant of more than \$30, usually with some special provision for the amount of income and assistance an individual may have; 8 states provide that an individual who receives aid to the blind may not receive at the same time another type of assistance, except for medical care or vocational rehabilitation. Within these general provisions many states, regardless of the limitation on federal matching, are attempting to see that an individual receives an adequate amount of assistance to relieve economic tension, to see that assistance is continued while the individual is undergoing treatment, and to see that remedial treatment is provided either through the assistance payment or by direct payment.

There are also special problems of equal importance in after-care of persons whose sight has been restored. New problems are to be faced by the individual who has had his sight restored and seeks to establish himself under changed circumstances. The protection of friendly interest and medical treatment and financial assistance not only need to be continued, but the patient needs to be assured before he undertakes treatment that they will be continued for a reasonable period after recovery. To this end the Social Security Board has said:

“Substantial incapacity due to blindness may be said to continue after medical treatment until re-examination has established the fact that the recipient has sufficient vision to render him ineligible to assistance. Where reasonable evidence is on record to indicate that plans are progressing for restoration of the individual's ability to be self-supporting, a report of such re-examination may be submitted for review by the supervising ophthalmologist as long as three months after the termination of medical or surgical care to assure that convalescence and psychological adjustment have been complete, and that restoration of vision has in fact been effected.”

Summary of Recommendations

To summarize, the attitude of the Social Security Board toward the prevention of blindness may be reflected in the following summary of recommendations that are being made to state agencies administering aid to the blind:

1. The determination of blindness and direction of medical aspects of programs for work with the blind will be under the guidance of qualified ophthalmologists.
2. Blindness will be defined in terms of ophthalmic measurement.
3. An examination by a physician skilled in diseases of the eye will be given each applicant for public assistance and a satisfactory report filed giving specified data with respect to each examination.
4. Public Assistance agencies will co-operate with public and voluntary agencies in allied fields in treatment and prevention of blindness and will seek to promote the maximum contribution of each agency in its particular area of competence.
5. The advice and co-operation of individual physicians and organized groups will be sought and used in planning and interpreting the work of the Public Assistance agency.
6. Studies of the incidence and causes of blindness will be undertaken under competent direction, utilizing the best scientific tools available, and the results of such studies will be used to plan for restoration of sight or prevention of blindness.
7. Skilled and sympathetic guidance will be given the blind or near-blind in helping them to avail themselves of opportunities for remedial services.
8. Financial assistance will be adequate to relieve economic tension while a patient is contemplating or undergoing treatment and will be adapted, insofar as possible, to the special needs and requirements of the blind person. The costs of paying for treatment may be included in the estimate of individual requirements used as a basis for determining the amount of assistance payment.
9. Service, including assistance, will be continued for a reasonable period after constant use of remedial treatment to contribute to the alleviation of personal and medical problems of the blind.

This, I believe, presents some ramification of the Social Security Board attitude toward prevention of blindness. Within the limits of the provisions of the federal statutes the Social Security Board will participate in the fulfillment of these practices. In the words of Helen Keller: "It will be glory enough if it can be said of us in the future—they were the forward-looking spirits who forced back further the frontiers of darkness that there might be a chance of light for everyone."

The Place of Medical Social Work in Ophthalmological Services^{*}

Edith M. Baker

PRESENT developments would indicate that medical social workers engaged in eye services may undertake, in addition to case work services, certain broader functions which include administrative, program planning, policy making and educational activities.

IN HER work in the ophthalmological department of a hospital, the medical social worker is concerned not only with the need of the individual patient under treatment, but also with the resources of the medical institution and of the community. All forms of social work in a community are necessarily dependent on and responsive to local conditions, such as the racial composition of the population, the level of education and of income, abundance or lack of medical and social resources, and the basic philosophy of the community in regard to its acceptance of responsibility for the welfare of its disadvantaged members. Of particular importance to the medical social worker serving patients with impaired vision are the provisions made for proper prenatal care; for adequate facilities for the treatment of syphilis; for the prevention of diseases and defects of the eye and for the treatment of those already existing; for vocational guidance; for the training and placement of persons with limited vision; and for public assistance for the blind who are in need. When a community has well-developed health and welfare services, the medical social worker can be more effective in helping patients with their personal problems and attitudes in facing illness or handicap and in assisting them to make use of available resources.

^{*} Presented at Annual Meeting of the District of Columbia Society for Prevention of Blindness, March 11, 1940.

In this age of scientific methods and laboratory investigations, with its ever-increasing number and complexity of tests and diagnostic procedures, the personnel of a medical institution is all too prone to ignore the importance of seeing the patient as well as the disease, of treating him as a whole man rather than as a case of trachoma or glaucoma. The patient is not just a diseased eye. The mind of a medical institution tends to become focussed on the diseased organ and to forget that it is only one member of the body. The medical social worker shares with the physician and the nurse responsibility for individualizing the medical, nursing, and social services to meet the patient's need. Only when there is opportunity for such individualization can there be assurance that the patient will profit as fully as possible from medical care.

When a patient enters a hospital, his personal identity is likely to be submerged. He is frequently referred to, not as Richard Roe, but as "that case of glaucoma in the last bed on the right of the ward." This anonymity may be relatively unimportant in some instances, but in other instances it may be serious if it leads to the patient's being treated only as a case of glaucoma and not as a man facing possible blindness. It is well known that everybody, sick or well, is affected in one way or another, consciously or subconsciously, by the personal and environmental forces that bear on his life, and especially to the sick forces may act as powerful stimulants or depressants. In order to understand the forces affecting Richard Roe, it is necessary to have a clinical picture of him which is not revealed merely through study of his complaints and through physical examinations and highly perfected tests, but which must include, as well, information about the patient as an individual with his family, his home, his work or lack of work, his relationships with others, his hopes and fears. A knowledge of the patient's attitude toward his condition, his understanding of his illness, and his ability to adjust to the handicap which it imposes are parts of the picture. The physician should know, in short, the intimate details of the patient's personality and environment. All this background which bears so strongly on symptomatology needs to be brought into proper perspective. The disease is treated in the hospital, but Richard Roe, lying awake night after night, afraid to face the future, presents a problem that is much more complex than the

pathologic physiology of glaucoma. Treatment may fail to reduce the ocular tension materially when Richard Roe is worrying over his restricted vision, the possibility of ultimate blindness, the prospect of long-continued treatment in the effort to conserve his present vision, and his reduced capacity to work and support his family. The physician knows the interplay of psychological and physiological factors, but he realizes that the admonition not to worry will be of little avail under these circumstances. Richard Roe needs the opportunity to talk with an understanding person about his problems so that he can face the situation that is confronting him and can be helped to assume responsibility for following medical recommendations, and to adjust his manner of living to conform to the limitations this disease may impose upon him. In this relationship between patient and social worker there is recognition of the patient's need and right to solve his own problems to the fullest extent.

In a recent article, Dr. Harry S. Gradle wrote as follows: "One of the major causes of blindness is that dread disease known as glaucoma, hardening of the eyeball. According to locality, 6 to 20 per cent of all known cases of blindness are due to glaucoma. In a large percentage of cases, the disease can be controlled, with resultant preservation of sight, provided the patient continues under ophthalmologic observation and treatment. But the long-drawn-out character of the condition discourages so many that they drop from sight and accept resultant blindness as inevitable. The late Dr. George Derby of Boston recognized these facts and was the first to establish in the Massachusetts Eye and Ear Infirmary a social service exclusively for the purpose of following glaucoma patients as long as they lived. It took us a good many years to follow in his footsteps, but now the rest of the ophthalmologic world is waking up to the necessity for such social service."

Social service departments have been developed in voluntary and in public hospitals largely in response to the desire of physicians to know more about their patients as individuals, and to assist them in making the necessary adjustments as satisfactorily as possible. The value of social study in diagnosis, the essential part that it plays in determining the exact treatment of the case, and its rôle in the prevention of disease and of psychological maladjustments,

both for the patient and his family group, have been demonstrated in the setting of the medical institution. Medical social service is an integral part of medicine itself and is not merely an activity of an allied field of social work. The medical social worker has no monopoly of matters thought of as "social," since each professional person in the hospital—administrator, physician, nurse, dietitian, or other person—is concerned with the social phases of the care of the patient in the course of serving him. Each of these professional persons brings a different body of knowledge, experience, and skill to his task. The medical social worker should bring an understanding of human behavior and of the social environment, a skill in interviewing, a knowledge of the services provided by various organized and unorganized resources in the community, and an ability to mobilize those which may contribute to the care of the patient if appropriately integrated with medical treatment.

The medical social worker uses an approach and a method which differ from those of the physician, nurse, and other members of the hospital staff. She seeks first to understand the particular meaning of the disease and its treatment to this patient, this person, who reacts, always individually, to his illness and to each step in medical care. What are his ideas about his condition? What have been his knowledge of and his experience with this disease in the past? What specific problems does it present to him? Always beginning where the patient is, emotionally and intellectually, and moving ahead in accordance with his tempo, she seeks to help him to understand the situation which confronts him and to do something constructive about it. If there are various choices, she aids him in reaching a decision. If there is an inevitable result to be anticipated she helps him to face and accept it, being careful not to project upon the patient her own reaction to the condition. Always she endeavors to give him sufficient understanding and support to enable him to move through his own initiative, and in the way which seems to be most satisfying for him as an individual and the most satisfactory in his social relationships.

There is probably no handicapping condition which draws forth more intense emotional response than the threat of blindness. This emotional response is potentially either a constructive or a destructive force both to the individual and to the community. The

individual inevitably absorbs and reacts to the social attitudes with which he is surrounded. If the response of others toward the problems presented by restricted vision or blindness is pity, fear, repugnance, or hopeless resignation, the patient with defective eyes invariably not only will be conscious of these basic feelings but also will react to his defect with the same emotional response. In dealing with individuals with defects, we encounter all our own mixed feelings about persons with whom it may be hard for us to feel at ease because their defect makes them different from us. Anxiety over feeling different from others is a fundamental reaction. Many of us do not feel comfortable or at ease with a handicapped person. We may even forget him as a person and think of him and react to him just as a disability. Such feelings explain our clumsy efforts to be natural; in our concentration on just how we should treat the person with severe visual handicap we act as though he belonged to another species.

A visual handicap may create social problems as serious and complex for children as for adults. Children who have a favorable prognosis as far as any permanent handicap is concerned may nonetheless have to undergo a period of temporary disfigurement. A child is acutely aware of any difference which separates him from his group. A child who is handicapped or different in any way excites attention and anxiety. Other children shrink from him because they are afraid of being like him. Because he is a threat to their security they repulse him through physical cruelty or through psychological cruelty, that is, by taunting him or isolating him socially. Parents' reactions to a handicapped child may range from extreme solicitude to rejection. They may feel responsible for his condition and wish to protect him in every way, or they may feel insulted by his disfigurement and wish to neglect him or punish him in other ways. Not every child with defective eyes presents emotional problems that appear to influence the medical situation or the child's adjustment to it. Many children even with serious defects of the eye are able to make a satisfactory adjustment to the limitations which are imposed. However, it is important to understand the meaning to the child of his eye defect and its treatment, and to be sensitive to the social factors affecting him at home, at school, and in the community.

The National Society for the Prevention of Blindness has just issued a pamphlet containing a symposium on "Sight Conservation Through Fuller Understanding of the Patient." It will be of particular interest to social workers and others who are concerned with the care of children who have a temporary or permanent visual handicap.

Because emotional factors may influence the medical situation or the patient's adjustment to a visual disability, it is essential for the medical social worker to examine her own attitudes, to understand what these handicaps mean to her, and to acquire emotional poise about the handicaps of the patients with whom she works in an ophthalmological service. She needs to be constantly aware that her feelings about the visual handicap of a patient affect his adjustment to his disability much more than her actions toward him. She is concerned not only with the medical care directed toward restoration of as much visual power as possible, but also with the individual's capacity to adjust to the limitations of an ocular handicap and to make maximum use of the remaining function. In order to assist these patients to change the way they feel about themselves so that they can utilize the services she brings and meet their life circumstances more adequately, the medical social worker must relate herself to them as personalities and not be obstructed by her reactions to their handicaps.

In addition to her case work with patients who have defective vision, the medical social worker is concerned with the response on the part of the public to the emotional appeal of blindness and of the possibility of preventing blindness. The force generated in this manner has power to raise money, to provide services and facilities needed in the community, and to secure socially desirable legislation, but it needs organization and direction if it is to be expended constructively. Such a worker is fortunate indeed if she is working in a community which has a well-developed program for the prevention of blindness. She is assured then of leadership in planning for the many diversified services that are needed in any community to meet the problems associated with the conservation of vision. She realizes that it is important for her to know about and to work co-operatively with every educational, vocational, industrial, wel-

fare, and health agency—local, state, federal, or national—whose services are available for persons with visual defects.

The factors which influence the welfare of the individual with impaired vision, and which determine the effectiveness of a program for the conservation of vision, are almost limitless. Only a few have been mentioned here. The medical social worker needs to keep herself informed of current thinking in regard to such matters. The literature on the subject is impressive. A timely article of particular significance to public health nurses and social workers has been written by Dr. Arthur M. Yudkin, "Nutrition As It Relates to the Eye." In this paper he states: "It seems obvious that not only the general health of the body but even that of the eye can be affected by faulty diet. Like many other parts of the body it can share in any strain placed on the organism by an insufficient supply of various dietary essentials." Application of this statement to a particular situation may show that there has been lack of food or a faulty selection of food. In any community where the levels of relief and assistance are low, the presenting need of the patient with impaired vision may be for help in obtaining food, and even shelter. In such instances much of the social worker's efforts may be directed toward meeting these basic physical needs before she can help the patients with their personal problems and attitudes in facing the limitations imposed by a visual handicap. The effect of such a community situation, with its predominating pressure to meet an economic need, may be to obscure or divert the less tangible but important contributions which medical social work might make to individuals with defective vision.

Present developments in the fields of health, welfare and education suggest that the medical social workers engaged in ophthalmological services and in programs for the conservation of vision may undertake, in addition to case work services, certain broader functions. These important broader functions may include administrative, program-planning, policy-making, and educational activities. It is social case work practice, however, that builds up the body of knowledge, tests methods, and develops a broad point of view, and such elements, which seem to be the very essence of the medical social worker's contribution wherever she functions, should have

wide application in these developing programs. The need for such activities is likely to increase rather than diminish. The emphasis now being placed in the different states on the various social phases of work for the blind and for the prevention of blindness will determine to a great extent what the contribution of medical social work to these programs will be in the immediate future.

Editorial

Blindness from Glaucoma Can and Should Be Prevented

IT IS one of the happy provisions of nature that no one is ever called upon to bear the accumulated sufferings of mankind. If he were, the burden would be intolerable.

When we read of mass blindness following injuries and diseases, our emotions are excited for a moment, but almost at once other interests seize our attention, and our sympathy ("sym" meaning with, and "pathy," feeling)—that is, the feeling with another—has passed away. It is only when we are brought into touch with actual instances of blindness that the dreadfulness of the tragedy is realized.

When we see a strong man, the wage earner of his family, vainly groping in the bright daylight for the chair which is directly before him, upsetting the glass of water on the table because he cannot see it, led on the streets by a little child—then and then only do we feel the magnitude of the disaster that has befallen him. Multiply his personal suffering by hundreds and by thousands, and we begin to understand the misery that ignorance and negligence and indifference have brought upon humanity; and then we know in some measure what the Preacher meant when (to paraphrase) he spoke of "the evil days when the light and the sun and the moon and the stars are darkened, and there is no pleasure in them."

Of all the blindness existing, even more than one-half of it would never have occurred if the right thing had been done in the right way, and at the right time. The responsibility rests upon each one of us for the prevention and control of the blindness that need not have been.

We have grown used to hearing about the number of eyes lost through accidents in industry, and of those that have been destroyed through syphilis and tuberculosis, but we hear little or nothing of a disease that takes more eyes than any of these, and that is GLAUCOMA. It is a mysterious disease. It is peculiar to no locality, and to no social class. We do not, as yet, know its origin.

We know only that something occurs that changes the pressure within the eyeball so that, instead of being elastic and resilient under the touch of the fingers or the more sensitive instrument that is employed, it becomes hard and tense, and that this occurs often—both subtly and insidiously. Because of the quiet onset with which it is ushered in, its recognition is overlooked, and too often it happens that when aid is sought, the time in which help might be effectively given has long since passed. But while the cause of glaucoma is one of the problems of medicine today, and more research is constantly being given to it, the conditions that aggravate it—that increase it—that hasten or retard its development—are known, and these can be met and overcome only in its incipency.

Our hope for the control of glaucoma lies in its early recognition. Professor deGrosz, one of the notable Hungarian eye surgeons, in an address given last year before the Hunterian Society in London, reported that during the 31 years in which he was head of the Eye Institute in Budapest, he operated on 4,326 patients for glaucoma, and out of these only eight per cent came to him during the first week after the manifest beginning of the disease, and only 13 per cent within the first month. Others trailed along, many of them months after all possible hope of relief had gone by. What happened in this great clinic—one of the best known in Europe—is happening throughout the world today. That is, the failure to recognize the oncoming of the disease—usually controllable in its beginning, but hopelessly fatal to the sight after deep organic changes have taken place in the structure of the eye itself.

Glaucoma is discoverable before the sight is affected, and protective treatment should be instituted at that time. It is one of the most prevalent causes of blindness throughout the world today. If it can be helped—and *it can*, often without operation, in its early stages—why is this not done? Chiefly because no organized measures have been taken to acquaint the public and the medical profession generally with the early symptoms and dangers of the disease. We cannot avoid that about which we know nothing. The early symptoms are often overlooked as transitory and unimportant. When the glasses worn seem to be wrong, and patients go from one doctor to another, trying to improve them—when there is discomfort in the use of the eyes, and there are halos around the

light at night, and the eyes are occasionally painful without apparent reason—when night blindness makes it difficult to see in the evening—skilled advice should be sought to determine whether or not these symptoms are menacing ones. If neglect of a serious condition is due to ignorance on the part of the public, this can be met. The health boards throughout the country, the American Medical Association with a society in every county, and the National Society for the Prevention of Blindness, should combine in public meetings to make popularly understood the dangers of this disease, the name of which as well as its threats to sight are known to comparatively few. The radio and the press are other means through which information might be conveyed. It is said that losses in industry cost the country more than ten millions of dollars annually in compensation. The losses from glaucoma amount to more than those in industry. We ask our health and medical societies generally to unite with us in setting in motion such measures as will protect the public from disasters so saddening and costly.

—PARK LEWIS, M.D., F.A.C.S.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request.

Sun Glasses

At this season of the year, one of the most frequent questions asked of the eye physician is, "Are sun glasses necessary and, if so, what type do you advise?"

There are so many different types of sun glasses sold under so many different names, many of which are very similar and produce the same effect, that it is easily understood why the public may be in a dilemma. First of all, the material in this article is confined to sun glasses and does not include protective glasses required in industries nor the tinted glasses which are prescribed as a part of the treatment of eye diseases.

The past summer, a fad of wearing colored glasses was created by movie stars and other prominent persons who got behind the smoked goggles at first to hide, and then continued to wear them because of the air of mysterious glamour they afforded. The more hideous and

streamlined were the blinders, the smarter they were considered and many girls had different colored ones to match their wardrobes.

Until a few years ago, the claims of some of the manufacturers in their advertising literature were full of exaggerations and often untrue. Due largely to the efforts of W. W. Coblentz for the federal Bureau of Standards, the advertised statements are more nearly correct today, and some standards have been set.

Inferior quality sun glasses are sold in almost every drug, cigar, and five-and-ten-cent store. They are made from celluloid, poor blown or pressed glass, are defective, and will add irregular astigmatism, myopia, hyperopia, or prismatic imbalance to the refractive mechanism. Consequently, they only increase the strain produced by the glare. One state prohibits the sale of these cheap glasses. The best

advice to give on this score is: Buy your sun glasses from a reputable optician and insist upon good quality ground and polished protection lenses, and, if necessary, ground with your correct distance prescription.

Why do persons wish to have sun glasses? The logical answer is: They wish to protect their eyes from glare. And what is glare? It may be defined as any brightness within the field of vision of such character as to cause discomfort, annoyance, interference with vision, or eye fatigue. Glare is unwanted light.

Scientifically speaking, the best sun glass is one which absorbs the ultraviolet and infrared rays, and partially and evenly absorbs the colors of the spectrum so there will be no change in the color scheme of nature. But for practical purposes, we need to worry about the infrared rays only in industrial glasses, and it is doubtful if the normal amounts of ultraviolet rays are harmful; in fact, they are beneficial. When one considers that most objects are viewed in reflected light and that as a general property they (except snow) highly absorb the ultraviolet rays, the latter seem to be of minor importance. For sports wear, the distortion of shades of color makes little difference.

The object of the manufacturers in making sun glasses of different materials and colors is to absorb the rays of the spectrum uniformly.

The distinguished scientist, Sir William Crookes, worked arduously on the lenses that bear his name—"Crookes" lenses. He was the first one to perfect a composition of glass that would absorb ultraviolet rays. Moreover, in sun glasses, "Crookes" glass displaced nearly all others as the lenses did not alter color values. A yellow canary was still yellow and a white sail was still white when perceived with "Crookes" lenses. Prior to the advent of these lenses, a white sail was amber when looked at with amber sun glasses, and green with green ones, and so on.

While "Crookes" glass was in great demand for many years, it had some detriments. Some objected to the depth of color. Also, the glass precluded the desirable or yellow rays, thus distorting colors. And lastly, there is no standard for "Crookes" glass; thus, poor quality "Crookes" glass may be made.

To overcome these objections, one American company set their scientific staff to work on producing glass that would transmit the desirable band of the spectrum and have less depth of color or shade and one that would blend with the human skin. The result of that endeavor was "Cruxite" glass, obtainable in four shades. Sun glasses of "Cruxite" glass are not obtainable "ready-made"—only on prescription. The latter is also true of "Soft-Lite" lenses obtainable in four shades. The makers of these claim that "Soft-Lite" tones down the en-

tire spectrum an even amount, though they do not cut down the ultraviolet rays. Similar in spectral transmission are sun glasses made with "Velvet Lite," "Aninfra," "Fieuzal," "Neophan," "Azurine," and "Macbeth Daylight" glasses are also made to fill out the color scheme. Many ophthalmologists agree that the old-fashioned "London-smoke" glasses serve the purpose of a sun glass as well as any other.

In the past few years, sage-green sun glasses have become quite popular. They are called "Chromat," "Ray-Ban," and "Calobar." These are trade names of different makers of lenses of almost the same glass ingredients. They are very fine glasses, are standard for the United States Army Corps, are largely used in aviation, practically completely absorb the ultraviolet and infrared rays, and cause no color distortion.

The latest type to become popular is "Polaroid" sun glasses in neutral and green shades. The lenses of these are laminated. Between the two fine sections of glass is a thin sheet of plastic in which billions of needle-like crystals are imbedded, all parallel to one another. These crystals "comb out" the light vibrations passing through them. The advantage of "Polaroid" lenses is that they absorb the horizontal light waves which make up most of the reflected glare. An early disadvantage which is being corrected this year is that the plastic material

often was wavy. Previously they could not be ground with a prescription but this is now possible, although quite expensive.

So far we have said nothing about the individuals who have a poor tolerance to normal lighting conditions. Lehrfeld in a thorough study describes this as a physical allergy to light. Don't confuse this with the allergy that causes hay fever and asthma. No doubt the faint shades of tinted lenses are a help to a small proportion of individuals, especially nearsighted ones with large pupils who cannot tolerate normal illumination.

Many people, in long distance auto driving, suffer headaches and eyestrain which they believe can be corrected by sun glasses. Some people who are sensitive to light have some refractive error or some other source of eyestrain. Hence, in many cases, glasses skillfully correcting the refractive error relieve most of the cause of subnormal light tolerance, which is the complaint of the majority of persons wearing tinted lenses.

Some advice which may save you trouble is that sun glasses are designed for day wear and should not be worn for night driving as they lower the visibility too much. As yet, no glass has been made which will overcome the glare of auto headlights and still be safe.

We have heard considerable criticism of sun glasses to the effect that they become habit-forming. Just

what is meant by habit-forming is not clear. Certainly they will not cause an atrophy of the color sense. However, if worn unnecessarily and continuously they may lower one's tolerance to light and instigate a discomfort in moderate illumination.

In choosing a sun glass, remember that all good quality absorptive and sun lenses on the market are of value and will serve your purpose as a glass for beach, snow, and bright summer day wear. The type depends upon the particular purpose for which you require them, and the depth of shade will depend upon just how sensitive you are to glare. When you are buying a pair of sun glasses, step outside on the sidewalk and try them on to see if they will suit your purpose.

And now to answer your most important question: "How much should I pay for a safe sun glass?" Satisfactory ones of good workmanship can be purchased for from \$1.00 to \$3.00. These prices are without your prescription. Very fine lenses, such as "Calobar" and "Ray-Ban," ground with your prescription, cost \$3.50 in addition to the price of a white lens. "Polaroid" without prescription are \$1.95, as a goggle (toric) \$6.00, and with prescription (toric) \$15.00 minimum.

To recapitulate, sun glasses are desirable to be worn when you are in the bright sun, never for night driving. And when you are not in the bright sun, in the best interests of your eye health leave them off.

Your choice of shade will depend largely upon the use to which you wish to put them, and the color you prefer is a personal matter.

In a survey which I have made of a representative group of ophthalmologists throughout the country, the results show unanimous agreement that sun glasses should be worn only in the bright sun. Fifty per cent are of the opinion that they may be harmful if used otherwise. Furthermore, all the eye physicians agree that only ground and polished glasses should be worn. Twenty-five per cent have no preference for any particular type. The balance of the oculists had various choices about evenly distributed among "Calobar," "Crookes," "Cruxite," "London-smoke," "Macbeth Daylight," "Polaroid," "Ray-Ban," and "Soft-Lite," which indicates that no one particular sun glass has any proved definite advantage over the rest.

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Sight Saving With the Chinese*

As one may readily imagine, teaching in a sight-saving class in San Francisco's Chinatown is extremely interesting. Although San Francisco is a very modern and progressive city, its Chinatown has

* Presented at the meeting of the National Education Association, Department of Special Education, San Francisco, California, 1939.

maintained an atmosphere of the Far East. In reality, it is a foreign village within the city. The Chinese have their own temples of worship, their own doctors, herb lists, nurses, hospital, day nurseries, clubs, social organizations, labor unions, shops, markets, restaurants, theaters in which the presentations are in Chinese, and schools for providing Chinese education. In Chinatown, the Chinese language is used almost exclusively in spite of the fact that a fairly large proportion of the adult population of Chinatown has been graduated from San Francisco public schools.

Chinatown's existence as a separate entity in San Francisco is not wholly self-imposed. There are first, the barriers to racial assimilation; second, the city has restricted Chinatown to a district of approximately eight blocks by three blocks, housing from 17,000 to 25,000.

Language is the major problem confronting teachers in the San Francisco public schools in Chinatown. Chinese children entering the schools have little, if any, knowledge of English. This language difficulty is indeed a problem, complicating the presentation of each subject in the curriculum. Chinese is a very ancient language; its written characters are a modified form of picture writing. Chinese verbs are all in the present tense; subject and object pronouns are expressed by the same character; there are no articles. Plurals of nouns are formed

by stating the number of persons or things referred to—unless the adjective “many” will serve the purpose. These and other characteristics of the Chinese language explain the sometimes amusing utterances of the Chinese as they translate literally their thoughts into English: this literal translation results in “I (or me) no like;” “Girl all time very quiet.” There is an expression, “One must learn to sing before speaking Chinese.” The language abounds with tonal qualities. If a word is pronounced in one way it means “mountain”; in another way it becomes the verb, “close.” Incidentally, I have been told by some of my friends that my own English has acquired a rather sing-song quality.

In addition to the fact that Chinatown is exceedingly overcrowded, much of its population lives in straitened circumstances. Definite problems in the field of health result from lack of air, light, sunshine, proper diet, adequate living facilities, and recreational activities. In the interior of China, vegetables in plenty, unpolished rice, and the chaff of grains provide a satisfactory diet. Although the Chinese contend that their diet in San Francisco's Chinatown includes all of the necessary vitamins, it will usually be found that they consume a great amount of polished rice, that they have adopted mainly our starchy foods, eat few vegetables and fresh fruits, use no butter and drink no

milk, with resultant lack of Vitamin A. Milk seems to be in great disfavor with the Chinese. As a matter of fact, it is not drunk in China; the Chinese seldom drink anything that is cold.

In Chinatown one rarely sees children at play on the streets until after eight or nine o'clock in the evening. The majority of our Chinese pupils, after their public school day from nine in the morning to ten minutes past three in the afternoon, attend Chinese school—the primary grade children from 4 P. M. to 8 P. M. and those in the upper grades from 5 P. M. to 9 P. M. Although their families compel them to attend, the Chinese children themselves seem to have an innate love for China and everything Chinese. The schools are conducted according to a course of study sent from China, and the curriculum includes reading, writing, history, geography, literature, music, and instruction in the use of the abacus. The children arrive home from American school, stop to eat rice, then gather their books and brush and ink, and are off for Chinese school.

The most unfortunate factors in this program are the lack of opportunity the children have to play in the sunshine and relax in the fresh air, and the excessive demands made, especially on their eyes. The hardship of such a program, superimposed on unsatisfactory living conditions and dietary deficiencies, is obvious.

In China, the science of ophthalmology can be traced back to the Han Dynasty, 250 B. C. This would seem to imply that the "silver sea," as the early ophthalmologists called the eye, has long presented a problem to the Chinese. Some historians attribute the invention of the eyeglass to the Chinese. Medical journals of the Ming Dynasty describe procedures for excision of "Nu Jou," or protruded flesh, which may refer to pterygium or granulation tissue. They also describe the "golden needles" used for removing cataracts. The ancient Chinese medical profession considered the eye as directly connected with the liver, and the kidneys were supposed to be connected with the pupil through which the tears flowed. It is interesting to note some Chinese remedies for visual defects: eyeballs, especially from nocturnal animals, if rolled in sugar and swallowed whole, are reputed to improve vision; if the entire eyeball is not available, the cornea of an animal's eye is considered beneficial. Wildcat soup and owl soup are considered nourishing for weak eyes. Shark fins also are said to have properties for strengthening eyes. There are small, orange-colored berries, procurable at herb stores, that contain soft seeds which, eaten raw, taste like dried apricots. These berries, eaten in a stew of pig liver and lean pork, are said to be capable of strengthening visual acuity. A popular household remedy for poor eyesight is a stew of snails

and garlic. One of the beliefs of ancient China was that eyesight improved if one arose early and went to a hillside to watch the sun rise. Perhaps the idea back of this was that one would then, of necessity, go to bed early instead of working or reading in the poor illumination the Chinese endure.

Faith in such remedies may seem incredible, but many Americans buy "cure-alls" by name, not even knowing the ingredients.

Myopia is very prevalent among the Chinese, both here and in China. Why this is so is not understood, though racial and familial tendencies, diet, posture, and inadequate illumination are considered possible contributory factors. A Chinese oculist whom I questioned proffered the theory that the frequency of myopia in the Chinese was due to an embryonic overdevelopment of the epidermic layer from which the eye is formed.

My sight-saving class is almost exclusively Chinese. In general, the routine is similar to that followed in other sight-saving classes; but in my class progress is, perhaps, I might say, rather hour-glass fashion, the existent language limitation representing the small aperture through which all information has to pass. I have greater need for individual instruction, particularly in reading; but even in the upper levels of the elementary grades, geography, history, science—in fact, all subjects of the curriculum—have to be pre-

sented in the simplest possible language.

In addition, problems in the field of health and hygiene are, I am sure, more acute and definitely more difficult to cope with. Classification of pupils is obviously not simple. Chinese children do not enter wholeheartedly into play activities; they appear not to be inherently athletic, although this may be an evidence of their need of physical rest. Institution of a functioning guidance program in Chinatown is difficult. Often neither parent can speak English, both work all day, and living and recreational conditions are unsatisfactory. This description, of course, is not applicable to all of the Chinese in Chinatown. Many of the Chinese attain admirable records in our schools and colleges and make excellent progress in the professions and business. The mass population, however, with meagre opportunities for education, work in laundries, factories, stores, barber shops, beauty parlors, shell shrimps, cook, or work as domestics; in the East Bay district and on the Peninsula, there are opportunities for truck gardening, fishing and farming.

I wish I could present my class to you. Seeing them would convince you not only of their intrinsic "Chineseness," but of the pleasure and fascination that ensue from contact with them.

ANN MCHUGH
San Francisco, Calif.

International Work

Mention was made in the National Society's annual report of the award of a gold medal to Dr. Park Lewis, and a medal to Mr. Lewis H. Carris on the occasion of the tenth anniversary of the foundation of the International Association for Prevention of Blindness. Since then, in the words of the Rockefeller Foundation's report, night has fallen over Europe. One felt anxious at first lest the results of ten years' labor might be engulfed in the catastrophe. However, we are thankful to say that this has not been so. Engagements abroad had to be cancelled and plans for an international meeting in the near future were postponed. A most promising scheme for granting a thousand-dollar honorarium for research work on glaucoma—a powerful cause of blindness, against which we are to a certain extent unarmed—has been in abeyance, owing to the fact that on this side of the Atlantic the majority of young doctors and scientists had to give up their usual pursuits.

However, in other fields the Association's work has not been hampered. The *Journal of Social Ophthalmology* continues to be published twice a year; it will temporarily include as a supplement the *Revue Internationale du Trachome*, a publication of fifteen years' standing. The *Revue* is more definitely scientific than the *Journal* which is

meant, like THE SIGHT-SAVING REVIEW, to be read by all. One must hope that this valuable addition will not alter the spirit of the *Journal*, and that the supplement, which is to be printed in English and French, will be adapted to its new and wider audience. In other respects one should hail as a happy event this sign of a closer collaboration between the International Association for Prevention of Blindness and the International Organization Against Trachoma. The latter disease is responsible for much blindness and misery in Northern Africa and the Far East. Except that it is a more widespread, mysterious, and treacherous disease than most other causes of blindness, there is no reason why it should be kept separate from its congeners in the general scheme of prevention.

The Association's secretariat is receiving from all parts of the world a steadily increasing number of periodicals in exchange for the *Journal*. Another interesting point is the growing amount of references to the preventive aspect of ophthalmology in a number of scientific publications. This is a direct effect of the Association's educational campaign. However, it should be added that for work which is so vital, with associations in so many fields, with such far-reaching implications, these references appear sometimes to be monotonous—a mere repetition of propaganda slo-

gans. What is the real reason for this lack of originality and vigor? Perhaps the international nature of the watchword. At home, an idea means facts, sympathies to be enlisted, obstacles to be overcome. It has a kind of national personality which it is bound to lose in crossing the frontiers which divide its native land from other countries. Well, the main point is that the idea should get across the footlights. Once it has settled in a different part of the world, it acquires, after some time, color and life from its new surroundings.

With the publications received in exchange for its *Journal*, the Association's secretariat is building up the nucleus of an international library. This will include periodicals and works directly or indirectly connected with the prevention of blindness. In this scheme, the Association has a valuable ally in the International Union against Tuberculosis, with whom it shares its premises and personnel.

Among the literature issued by the Association, special mention should be made of the French edition of the report on "The Number of the Blind and the Protection of the Eyes in Different Countries." This report, edited in Cairo, is a late by-product of the Fifteenth In-

ternational Ophthalmological Congress. It is a token of the keen interest which preventive action has aroused in Egypt, one of the countries where the scope for such work is almost unlimited. The report includes surveys made in 37 countries, and gives a fair idea of the actual state of affairs on the eve of the war. It shows both the distant ramifications of this complex problem and its changing aspects in the various nations.

With war raging at our doors, and the fate of Europe hanging in the balance, it may be wondered whether these considerations are not to some extent futile. Undoubtedly, for the time being, they seem unable to stem the surging tide of anxiety in the human heart. However, personal feelings must be disregarded; it is our duty to look ahead and to prepare for the future.

America, which has played a leading part in this vital work, can do a great deal in helping to preserve what can be saved, and in keeping alive the spirit of the Association until times are more propitious.

DR. P. BAILLIART

*President International Association
for Prevention of Blindness*

Paris, France

News of State Activities

THIS Section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Brief and timely items only can be used, because of the limitations of space

Colorado

"During the month of May, the Division of Maternal and Child Health of the Colorado State Health Department has held two eye clinics. No more clinics will be conducted now until the opening of the schools in the fall. The policy regarding the organization of eye clinics has been somewhat changed in these last two clinics, in that counties where clinics are held are now participating financially to some extent. A total of 422 children were examined in these clinics, while 175 of the medically indigent group were refracted, and local arrangements made for glasses.

"During the coming fiscal year, the policy will be to return to counties where clinics have been held previously, in order that additional cases may be examined, and a more thorough re-check and follow-up service be given. Colorado's sight conservation program is working out to the satisfaction of all concerned, and the co-operation of local, educational, welfare, and civic groups, along with the State Ophthalmological Society, is most gratifying."

—*Director, Maternal and Child Health, Division of Public Health,
State of Colorado, Denver, Colorado*

District of Columbia

"Continuing to stress vision testing as one of our major activities, we have nearly completed a survey of the Washington parochial schools, carried on in co-operation with the school medical inspection service of the health department. A volunteer committee of 39 mothers of parochial school children has been instructed and supervised by Mrs. Spencer, executive secretary of the Society, and has worked faithfully and energetically throughout the school

year. As a result of this project, we shall discover the children with visual defects, who will then be referred to the health department, and we shall also locate the children who are in need of the special advantages of sight-saving classes.

"Although final results will not be known until the schools close, at the present time 20.9 per cent of the several thousand children tested have been found to have vision below normal. In contrast to this distressingly large number, we have found, through wide experience in testing preschool children, that in the latter group about 10 per cent have subnormal vision. Is it possible that discovery of visual defects at the preschool level would produce a lower number during the grade school years? In any case, there can be no question regarding the efficacy of vision testing as an important phase of conservation of vision."

—*District of Columbia Society for the Prevention of Blindness,
Washington, D. C.*

Illinois

"In February of 1939, the Illinois Society for the Prevention of Blindness opened a glaucoma clinic at the Illinois Eye and Ear Infirmary in Chicago. A study made just previous to the opening of this clinic at the Infirmary showed that only 2.8 per cent of the glaucoma patients at that institution returned for observation and treatment. The Society opened the clinic on a demonstration basis, hoping that in two years' time the State Department of Welfare would take over the clinic on its budget. Of the money required, \$2,500.00 was raised from the Otho Sprague Foundation; \$200.00 from the Chicago Community Trust; and \$200.00 from the W. P. Murphy Foundation, plus additional funds from the Illinois Society for the Prevention of Blindness. A medical social worker was sent to St. Louis for training, and the clinic was opened on February 1, 1939.

"Since that time, 623 patients have been registered at the clinic—of which only 22 have failed to return for observation or treatment. Of the 623 patients registered at the clinic:

“35 are now receiving intensive social service.

104 are receiving minor services.

53 are inactive (they are either too old or too incapacitated to need much care, or their vision is below the blind pension level and therefore the prevention of blindness angle is no longer important).

335 are active for follow-up.

95 have been discharged.

"The Illinois Society for the Prevention of Blindness proposes to take steps during the fall of 1940 to prevail upon the Department of Welfare to include this clinic in its next budget for the Illinois Eye and Ear Infirmary. If they do not do this, the Illinois Society will continue to carry it for the next two years. The Illinois Society is also co-operating this year on the organization of a state medical advisory committee, and is giving a series of lectures in the six normal universities of the state."

—*Executive Secretary, Illinois Society for the Prevention of Blindness, Chicago, Illinois*

Kansas

"*Minutes of Committee on Conservation of Eyesight of the State Medical Society.*—A meeting of the Committee on the Conservation of Eyesight was held in Wichita on February 4. Members of the Committee present were Dr. Lyle S. Powell, Lawrence, Chairman; Dr. H. L. Kirkpatrick, Topeka; Dr. Wm. M. Scales, Hutchinson; Dr. George Gsell, Wichita, Dr. J. F. Gsell of Wichita, and Clarence Munns were also present.

"Dr. Scales presented a report concerning a questionnaire he forwarded to all Kansas eye, ear, nose, and throat specialists in regard to whether they would favor the presentation by the Committee of a postgraduate course for eye, ear, nose, and throat practitioners. Dr. Scales reported that he had received 38 replies in favor of a course of this kind and only four opposed; that the majority felt the course should be presented at a central place in the state; that it should be three or four days in duration; that half of the course should be devoted to eye and half to ear, nose, and throat; and that 38 of the 41 favored a self-financed course with a fifteen- or twenty-dollar registration fee. Upon a motion made by Dr. Gsell, and carried, it was decided that Dr. Scales should continue his investigation on this subject, and that the Committee would plan to offer a course of this kind next winter.

"Dr. Janney, who was unable to attend, had forwarded a report of his investigation of the possibility of holding a Committee-sponsored eye, ear, nose, and throat postgraduate course for general and other practitioners. Following discussion of Dr. Janney's report it was decided upon a motion made by Dr. Gsell, and carried, that a suggestion should be made to Dr. Janney that he forward a bulletin in the name of the Committee to the county medical societies offering the services of speakers on eye, ear, nose, and throat subjects, and that this plan be utilized as an experiment to determine the interest, in courses of the kind, of the profession.

"The subject of sight-saving classes was discussed, and Dr. Gsell

was asked to continue his joint efforts with Mr. LeRoy Hughbanks in this connection.

"Dr. Kirkpatrick reported that he and Mr. Hughbanks are at present considering ways and means to improve the medical forms being used by the Division of the Blind of the Kansas State Board of Social Welfare, and that he felt it would be possible to improve these in certain respects. A letter from Mr. Hughbanks was presented, asking the advice of the Committee on a suggested bulletin, describing the examination and treatment procedures under the Kansas blind program, which the Kansas State Board of Social Welfare plans to issue in the near future. Several suggestions were approved by the Committee, and the central office was instructed to communicate these to Mr. Hughbanks.

"The question of approval of ophthalmologists for participation in the Kansas blind program was discussed, and the Committee expressed itself as being in favor of the present plan now being used in that regard."

—*Committee on Conservation of Eyesight, Kansas Medical Society, Topeka, Kansas*

Louisiana

"*Fireworks Legislation.*—Our Society has given the problem of fireworks accidents a great deal of thought, and though we have conducted an unremitting campaign in an effort to eliminate accidents from this cause, we are short of our goal. We have come to the conclusion that statewide legislation, prohibiting the unregulated use of fireworks, is imperative. We have been generally credited with having a New Orleans city ordinance passed more than two years ago. This ordinance was passed as the result of a deluge of protests—entirely justified, in our opinion—caused by the reckless abandon with which fireworks were generally used throughout the city in connection with the celebration of Christmas and New Year holidays. During the holiday season—due to the carelessness and, in many cases, the actual viciousness with which firecrackers were generally used—there were hundreds of injuries which typified the essence of horror.

"In 1936, and again in 1939, our Society sponsored statewide legislation to prohibit the unregulated use of fireworks. This legislation met with defeat, the legislators amiably but stubbornly clinging to the idea that if such legislation were enacted, it would deprive children of a great deal of pleasure. All along, it has been difficult to make the lay mind associate danger with anything appearing so harmless as firecrackers. Undaunted, a study of fireworks legislation in other states was begun at once. A further study was made of statistics showing marked reductions in the number

of accidents after enactment of such legislation in various states and cities. We are again sponsoring a fireworks bill which will extend to the state, if passed, the same provisions against the use of fireworks embodied in the ordinance adopted by New Orleans—which ordinance has brought blessed relief from nerve-shattering racket and from the terrors and suffering of needless accidents in observance of its holidays. Our legislation has been favorably reported by the House and Senate committees, and will be up for a hearing before both houses within the next few days. There has always been a genuine desire and willingness on the part of local people and organizations to co-operate cordially and openly with us in this measure. The Louisiana Parent-Teacher Association, American Legion, American Legion Auxiliary, and the Women's Citizen League have all supported this bill. We believe any opposition similar to that which previous legislation has met will ultimately be withdrawn, for we know that it is sound from both an economic and a humanitarian standpoint.

"Blood Tests for Pregnant Women.—We have actively supported the 'Baby Health Bill,' which provides for prenatal tests for all pregnant women. A committee from our Society has participated in meetings held for the purpose of drawing up this bill, and of creating interest in it. This legislation, if enacted, is bound to prevent much blindness in Louisiana, and we believe it deserves support of enactment on the strength of probable benefits. We know that if the syphilitic germ is discovered in pregnant women, prompt treatment may save the babies' lives and greatly improve their chances of sound bodies and normal health. A study of the cause of blindness of 700 cases in Louisiana shows that, in 106 or 15.1 per cent of the 700 cases, syphilis was the cause of blindness; and 29, or 4.1 per cent, were blind from gonorrhea. Enactment of this legislation will mean that prevention of much of that dreadful toll is a blessing within reach of Louisiana and its mothers, by the prenatal test imposed in the bill. This bill has passed all committees and will come before the House and Senate for final action this week. We know of no reason why anyone should want to oppose its passage.

"Co-Operative Agencies.—It has been the privilege of our Society to enjoy close co-operation with the joint child welfare department of the American Legion and American Legion Auxiliary. A standing committee on the preservation of vision was appointed several years ago and is still most active. We were particularly stimulated by their 1940 report of prevention of blindness work, which was given at the state convention in Shreveport. An analysis of their work follows:

'Several eye clinics were conducted during the year. Public health nurses and doctors co-operated by giving preliminary eye tests to 720 children. Out of this number, 120 were found with eye difficulties. All of the children with eye difficulties were taken to oculists and have been given the necessary care. Of these children, 31 were furnished with glasses. More than \$350.00 has been spent on sight conservation during the year.'

In addition to the remedial work which has been done by the child welfare departments of the Legion and Auxiliary, ten department units have given prevention of blindness programs at their meetings."

—*Louisiana Society for the Prevention of Blindness,
New Orleans, Louisiana*

Minnesota

"The Minnesota Society for the Prevention of Blindness, which was incorporated last summer as a non-profit organization, has been conducting an educational campaign by means of the radio throughout the state. This program has been under the direction of Mr. J. C. Lysen, Superintendent of the School for the Blind at Fari-bault, who is serving as the acting executive secretary of the Society. By the end of May, 15 broadcasts were made. Practically all of the broadcasts have been in the form of interviews, and have featured men and women who are outstanding in Minnesota in the educational, welfare, and medical fields."

—*Minnesota Society for the Prevention of Blindness, St. Paul, Minnesota*

Missouri

"The committee on conservation of eyesight of the Missouri State Medical Association introduced a resolution at the annual state meeting, requesting its delegates to the American Medical Association to introduce a resolution before the house of delegates of that body, calling for a nationwide program on conservation of eyesight on the part of the medical profession. This resolution was passed by a unanimous vote of the Missouri State Medical Association's house of delegates.

"The committee also introduced a resolution before the house of delegates of the Women's Auxiliary of the Missouri State Medical Association, requesting them to use the subject 'Conservation of Eyesight' during the year in the essay contest that is competed for by all of the high school students in the State of Missouri. This

subject could be used in statewide competition in every other state in the Union, by each auxiliary."

—*Committee on Conservation of Eyesight, Missouri State Medical Association, St. Louis, Missouri*

New York

"Course in Eye Hygiene.—The course entitled 'A Survey of Eye Conditions' (four points credit), to be conducted by an ophthalmologist, will again be available to students planning to attend New York University, summer session.

"This course has been offered by New York University since 1932 in co-operation with the Bureau of Services for the Blind, New York State Department of Social Welfare. Material offered in this course designed for workers in the fields of education, social welfare, nursing, and allied fields, aims to give a knowledge of eye conditions as related to problems of general health and welfare with emphasis on the need for sight conservation and preventing blindness. (It is the conservative opinion of leading ophthalmologists that 75 per cent of blindness is unnecessary.)

"For program giving outline of lectures please write to: Miss Ruth McCoy, Bureau of Services for the Blind, New York State Department of Social Welfare, 205 East 42nd Street, New York City.

"Statewide Fireworks Campaign.—Since the Fireworks Ban Bill signed by Governor Lehman April 12, 1940, will not be effective until August, 1940, we are again ready to participate in the general campaign against needless Fourth of July accidents caused by the use of fireworks. Our poster, 'Watch Out for Your Eyes,' is ready for distribution. As you know, many fireworks accidents occur weeks before the Fourth of July. Can we send you a supply of our posters to help you in giving your community an early warning against needless Fourth of July accidents? These posters will be mailed postage free."

—*Prevention of Blindness Service, New York State Department of Social Welfare, Bureau of Services for the Blind, New York City, New York*

Ohio

"During the current school year (1939–40) the Ohio Commission for the Blind, with the co-operation of the division of special classes, State Department of Education, conducted eye surveys in five city and four county public school systems, and one state residential school (Boys' Industrial School, Lancaster, Ohio), having a total

enrollment of 21,841. Eight hundred and five cases were examined clinically, and 25 cases reassigned from this group to the division of special classes. The school eye surveys will be continued to furnish more adequate information on local eye hygiene needs and to assist extension of sight-saving facilities to areas in need of such service."

—*Commission for the Blind, Department of Public Welfare,
Columbus, Ohio*

South Carolina

"With full realization that a large part of any program for the prevention of blindness and conservation of vision lies in the field of education, the Division for the Blind of the Department of Public Welfare of South Carolina has endeavored, since the inauguration of its program, to make this phase of work as inclusive as possible. This spring, the Division has arranged for nine lectures on eye health, to be given by outstanding ophthalmologists at Winthrop College. Winthrop is the largest college for women in the State of South Carolina. The lectures were splendidly attended, and their reception was most gratifying. Two similar lectures were given at The Citadel, Charleston, South Carolina, a military college of national recognition. Three lectures were likewise given at the University of South Carolina. The Division hopes that similar procedure may be followed each year, and that these lectures may become a regular part of the health curriculum in colleges and schools throughout the state.

"The School for the Blind of South Carolina has been a great asset to the program for the handicapped. Mr. W. Laurens Walker, Superintendent, has co-operated in every respect, making it possible for the Division to assist in examinations and treatment of many of the students attending the institution. Since the beginning of its program, the Division has been furnished with copies of medical reports of students—a service of tremendous value in the matter of compiling state statistics, studying causes of blindness, and in following up cases. Mr. Walker has just announced that he is requesting the Board of Commissioners of the School to make ophthalmological examinations a prerequisite for entrance. These examinations will be made by a qualified ophthalmologist, through the Division for the Blind. This procedure will provide each applicant with the opportunity of every possible treatment for the restoration of vision before admission to the School for the Blind."

—*Division for the Blind, State Department of Public Welfare,
Columbia, South Carolina*

Tennessee

"On May 6, 1940, the Sight Conservation Service completed its first two years of service. During this two-year period, 331 persons have had sight restored to them in one or both eyes, in amounts varying from two per cent to normal or better than normal vision, either by surgery and glasses, surgery, treatment, or by glasses alone. Nine persons for whom surgery to restore sight was arranged, and for whom hospitalization was also arranged, have refused to accept these services for one reason or another. Eight other persons have had surgical operations to restore sight, all of which have been successful, but as yet no report on the amount of sight restored to them has been received by this Service. Ninety-eight operations to restore sight and prevent blindness have been performed by eye physicians of the state for persons referred to them by this Service, and only three have been failures—two being corneal transplantations, the other a cataract extraction. The prognosis of these three was very poor prior to surgery, so these failures were anticipated, but the Sight Conservation Service felt that these three persons should be given every possible chance to regain sight.

"During this two-year period, total or partial blindness has been or is being prevented in either one or both eyes in 197 persons, the prevention being accomplished by surgery, treatment, or by glasses alone. Fifteen persons, for whom surgery and hospitalization were arranged by the Sight Conservation Service in an effort to prevent their going blind in one or both eyes from various eye conditions causing blindness, have refused to accept these services. Fourteen of these have been persons applying for aid to the blind under the Social Security Act. The causes of blindness represented in this group of 197 persons in whom blindness has been or is being prevented are: glaucoma; pterygium; sympathetic ophthalmia; trachoma; diabetic cataract; choroiditis and chorioretinitis due to focal infection; high hyperopia with amblyopia, and possibly syphilis and progressive myopia."

—*Sight Conservation Service, State Department of Health,
Nashville, Tennessee*

Washington

"A Public Health Nurses' Institute was held in the State of Washington, in three sections of the state, during the month of February, 1940. The Institute was conducted jointly by the State Department of Health and the Division for the Blind, State Department of Social Security. Through the co-operation of the Na-

tional Society for the Prevention of Blindness, Miss Eleanor W. Mumford was available for the Institute. In addition to the public health nurses, the field representatives of the State Department of Social Security were permitted to attend. The Institute has shown active results by the cases referred for care through the public health nurses throughout the state."

—*Division for the Blind, Department of Social Security,
Olympia, Washington*

Note and Comment

New Sound Slide Film Covers Prevention of Industrial Eye Accidents.—How eye accidents are prevented in industry, through education of workmen and the use of goggles, masks, and other protective equipment, is dramatically portrayed in "The Eyes Have It!" a new sound slide film sponsored by the National Society for the Prevention of Blindness.

Combining humor with a serious presentation of the factors responsible for eye accidents in industrial plants, this educational film is intended for groups of workmen and foremen as well as safety directors. It is anticipated that wide use will also be made of this production by local conservation of vision committees, safety councils, and other agencies who have as part of their program the subject of sight conservation.

The tragedy of blindness resulting from carelessness is contrasted with the absence of eye injuries where hazards are recognized and a continuous safety campaign is conducted. The production was directed by Harry Guilbert, a member of the industrial advisory committee of the National Society for the Prevention of Blindness, and director of the bureau of safety and compensation of The Pullman Company.

The production consists of a 35-mm. film strip of 122 still pictures synchronized with a twelve-inch, double-faced, electrically transcribed record, and takes about twenty minutes to show. Copies may be borrowed for review purposes, free of charge except for transportation costs both ways.

The cost of this sound slide film is \$7.50. Inquiries should be addressed to the National Society for the Prevention of Blindness, 50 West 50th Street, New York City.

Large-Type Editions of the Scriptures.—Modern advocates of large-type books may be interested to learn that the American Bible Society of New York pioneered many years ago in the presentation of the New Testament, the Psalms, and a complete Bible in what they term their "Great Primer" Edition. A copy of the Psalms, dated 1867, recently came to the attention of the National

Society for the Prevention of Blindness, leading to information from the librarian of the American Bible Society that the first large-type New Testament was published by them in 1857; a volume containing the Psalms alone appeared the following year; and, over 70 years ago, in 1869, the same Society produced their first Great Primer Edition of the Bible.

Far-Reaching Ophthalmic Facilities in Leeds.—A full and informative report of the school medical officer of the City of Leeds has been published, covering the year ended December 31, 1938. Of 71,142 children enrolled at this date, 142 had defective or impaired vision. An innovation was the introduction into the Class Register of pages, to form a running record while the listed children remained enrolled, indicating pupils requiring glasses at the time of medical inspection. Defects observed and treated include 9,133 vision examinations, of which 5,626 were classified as special cases. A solitary child suffering from trachoma represented the only residential treatment on record for the year; in this case the child was hospitalized, and recovery was complete. The medical officers have devoted special consideration to half-yearly examinations of progressive myopia in pupils whose vision indicates probable transfer to sight-saving schools. Continued study has been given to causes of defective vision in the "infant" (three- to seven-year-old) group, and preliminary vision tests by nurses of children too young to identify letters have been found successful. Increased attention was given to cases of squint; pupils in question were required to wear for three months the prescribed glasses, or an occluder for the good eye, ordered by the medical officer. Responsive cases have been further improved by orthopic training. Partially-sighted Leeds children totalling 43 were entered in two special schools during the school year summarized. Comparisons with previous records indicate a decrease of incidence of blindness in children. Classwork in reading aids indicates the desirability of extended use of these facilities.

An Apostle of Neuro-Ophthalmology.—It has been remarked with interest in American medical journals that a distinguished professor of ophthalmology, in his opening lecture at the Faculty

of Medicine in Paris, devoted attention to the analytic study of clinical relations between neural and ocular disorders, characterizing this study by the term "neuro-ophthalmology." It was pointed out that ophthalmology has ceased to be a subject sacred to the specialist, but has become increasingly prominent in phases of social medicine affecting the sight of school children, protection against industrial accidents, control of trachoma, and every aspect of blindness prevention. The World War saw the birth of the science of treating ocular wounds; present hostilities present new surgical emergencies. Wider instruction based on resulting new and enlarged techniques and skills will become accessible to ophthalmologists everywhere—greatly increasing the scope, and inspiring a wider and more keen appreciation, of their work.

Report on India's Blind.—Sir Michael O'Dwyer in his foreword to the report, "Blindness in India," summarizes the findings presented, attributing the high incidence of Indian blindness—half of which is known to be preventable—to the inertia of state and public bodies, and the dearth of voluntary organizations and private philanthropists whose support is needed to combat the obstructive problems of Indian illiteracy, fatalistic attitude, and want of civic responsibility. Ten years' effort in blindness prevention having produced but slight alleviation of the Indian situation, "Blindness in India" was prepared to inspire co-operation by existing bodies. Facts emphasized in this text indicate that eye diseases abound; trachoma is rife among Indian school children; authorities are convinced that much blindness results from infantile ophthalmia, the majority of the partially-blind population losing vision in infancy and childhood. First in each group of suggested reforms are treatment of ophthalmia neonatorum, and education of doctors, midwives, and mothers in its treatment; eradication of irritant remedies; and vaccination of smallpox contacts. Hardly less strong is the emphasis placed upon provision of sight-saving techniques and equipment in schools, with early and constant examination of the eyes of youth. Despite repeated setbacks in prevention of blindness work, modest grants to the Indian Red Cross for instruction of teachers and for preparation of simple printed material in Indian dialects have produced significant results.

Glasses Can be Fascinating!—A vivid and persuasive picture of the new world revealed to the patient who is correctly refracted for the first time, after rebellious insistence that nothing could be wrong with his eyes, is given in brief under the title "Before Glasses and After," in *The Kalends* of the Waverly Press, Baltimore publishers. The unwilling subject admitted he had long denied fatigue, poor distance vision, and dulled color sense; however, standard eye examinations showed an astigmatic condition and resulted in the prescription of necessary glasses. These made their first shy public appearance in a nearly empty streetcar, on the way home through busy streets. Curiosity to make comparisons tempted the reluctant patient to experiment in spite of himself. In enthusiastic delight, he writes:

"I was stunned . . . I toyed with them (the glasses), removing and then replacing them; the contrast was fascinating. . . Over a month has passed and my glasses are yet a source of pleasure and freshness. . . Motion pictures and the theater are now open to me without any restraints. Now I can read that clock on the Johns Hopkins campus. I have been able to spend more time with my books; I have a keener conception of color . . . six hours of work is no longer a fatiguing task."

Two Wars Teach England Eye Casualty Procedure.—In 1914, England was unprepared for segregating grave ophthalmic casualties, and no means were at hand to provide for the war-blinded the long and specialized care and the subsequent treatment and training required. In the emergency St. Dunstan's Hospital was founded, and a London general hospital organized to receive and administer initial care to seriously injured eye patients and blinded soldiers scheduled for transfer there. In the post-war years, St. Dunstan's maintained, treated, and trained its resident charges, developing and enlarging its ophthalmic and other facilities to form a permanent home, possessing every advantage which could be utilized by and for the blind. Long before the outbreak of the present war, St. Dunstan's new home near Rottingdean, with complete modern equipment and trained surgical and nursing personnel, was offered to the government for accommodation of eye casualties from among the present fighting forces. From plans prepared

in advance of the need, dormitories and available indoor recreation space quickly became additional wards, and construction began at once on a new operating theatre block, connected by a bridge to the main building, designed without windows and equipped with the most modern artificial lighting and air-conditioning apparatus. In addition to providing for the blind, concentrated expert treatment is administered to serious eye lesions.

X-Ray vs. Ophthalmoscope in Eye Injuries.—A recent issue of *The Journal of the Medical Society of New Jersey* presents a paper by A. Russell Sherman, M.D., entitled, "X-Ray Localization of Intraocular Foreign Bodies from the Viewpoint of the Ophthalmologist," in which the usual method of x-raying eyes is briefly described and records are presented of accident patients whose initial x-ray examination failed to reveal the presence of foreign bodies in the posterior segment of the eye. Subsequent examinations taking place from a day to more than a year later disclosed the offending substance in eleven out of ninety-five instances. Dr. Sherman further considers the causes of inaccuracies in gauging or stating the exact location of the foreign body. It can be readily understood that all eyeballs are not of equal size, and that an object not more than one mm. in length may with difficulty be distinguished in the bone shadows from the skull. Involuntary movement of the patient's eye at a critical moment is a factor tending to encourage or exaggerate possible error. A further obstacle to the eye physician is his own inability to check the localizing report, which must have been prepared with the utmost exactness by the laboratory to correspond precisely to the conditions under which the x-ray was taken.

It is felt that minute office examinations with the ophthalmoscope will reveal and quite exactly localize a considerable percentage of intraocular foreign bodies. If visible in or near the lens, or lying on the retina, localization by this means may prove more dependable than any x-ray examination, and permit of speedier relief for the patient. Of course in cases where the foreign body eludes detection by the ophthalmoscope, but the gravity of symptoms urges immediate removal, x-ray should be resorted to without delay. It is recommended, however, that the ophthalmologist, to

whom the faintest corneal scar or defect of the iris is so significant, exercise great discrimination in his choice of a roentgenologist and, as a further safeguard, adopt an attitude of doubt toward negative x-ray reports in cases of alleged eye injury.

M.I.T.'s Intensive Public Health Program.—Massachusetts Institute of Technology, Cambridge, Massachusetts, through its Department of Biology and Public Health, this year inaugurates a graduate program of four summers' intensive work in Public Health, School Health, and Health Education. The program of study, in half-semester periods during summer periods from 1940 through 1944 only, and leading to a Certificate in Public Health, is open to professional health workers holding a B.A. or higher degree and possessing distinct ability in the field of school health. Special arrangements may be made for completing the required work in two summer sessions in 1940 and 1941 and the second semester of the 1942 college year. Courses scheduled for the first summer only include Communicable Diseases; Principles of Sanitation; Public Health Administration; and Vital Statistics. Acceptable students not desiring to complete the four summers' consecutive courses for a degree are registered for individual courses to be offered during 1940 in General Bacteriology, Public Health Bacteriological Methods, and Food Technology.

One Hundred Thousand English Eyes.—For several years, England's National Ophthalmic Treatment Board has been reporting annually on its activities. The 1938–39 report presents a consolidation of findings on incidence of pathological conditions in over 50,000 cases of eye defects studied over the five-year period from 1934 to 1938 by eye physicians. As explained in some detail, in co-operation with the British Medical Association and the Association of Dispensing Opticians, the National Eye Service provides to eligible patients, at fixed inclusive charges, eye examination by a specialist and medical treatment as indicated, combined with provision of glasses where necessary. Lens prescriptions are dispensed, and the requisite glasses supplied, by opticians licensed by the National Ophthalmic Treatment Board. Statistics presented in the report for the year 1938–39 include an analysis of 50,741 eye cases

classified as follows: Error of refraction, 32,295; errors of refraction and other eye conditions, 14,047; other eye conditions only, 4,008; no appreciable defect, 391. The National Ophthalmic Treatment Board, having circularized English industrial groups to determine the degree of concern shown by employers regarding eyesight of their workers, has felt that continued emphasis must be placed on the value, to each group, of efficient industrial illumination and good vision, and the significance of both in quality and volume of work produced. To this end, the Board issued during the year, and circulated to the press, industry, and health officers, a booklet on "Vision in Industry." Educational films, news releases, industrial lectures illustrated by slides, and permanent exhibits maintained in busy locations, were employed to disseminate information on medical eye examinations and eye health.

Current Articles of Interest

Cataract vs. Glaucoma, Louis Bothman, M.D., *Illinois Medical Journal*, October, 1939, owned and published by the medical profession of Illinois at 715 Lake Street, Oak Park, Illinois. Points out the difficulties in differential diagnosis of primary glaucoma with secondary cataract, and cataract with secondary glaucoma, complicated by the necessity for treating the glaucoma first and the cataract later. Since both conditions may appear in middle life, the ages of individual patients may not be indicative, but case histories given by intelligent and observant patients can be valuable. Vision alone is of little aid in diagnosis, but the size of the globe may be, and the field examination is of first importance. Constriction of the central field to within a few degrees of the fixation point, with findings of a scotoma or losses in the nasal field, most often are due to primary glaucoma. A small eye, usually hyperopic, the corneal diameter of which is 10 mm. or less, is likely to have glaucoma with complicated cataracts, whereas the large, often myopic, eye may present a cataractous condition with secondary glaucoma. Descriptions are given of slit-lamp study findings in senile cataract with glaucoma, and primary glaucoma with complicating cataract.

Rôle of Vitamins in Ophthalmology, Helen Holt, M.D., *Illinois Medical Journal*, May, 1939, published monthly by the medical profession of Illinois, 6221 Kenmore Avenue, Chicago, Illinois. Dr. Holt, in her paper presented at a meeting of the Chicago Council of Medical Women, reviews the teachings of early sages and healers regarding foods now recognized to contain high percentages of vitamins. It is remarked that vitamin A deficiency was evidenced in historic epidemics such as occurred in Russia in 1887, in Japan in 1896, and in Denmark in 1917. Since the discovery of vitamin A and the significance of its rôle in nutrition, no more than five cases of adult xerophthalmia have been reported in medical literature, and there is yet no indication that ocular symptoms of vitamin A deficiency have become more general during recent depression years. Although young children register lack of vitamin A more readily

than do adults, the author quotes workers with London children as pointing out that severe conditions attributable to vitamin A deficiency have become virtually unknown in the past decade, owing to the advances in living standards and infant care. On the other hand, a study published in 1935 showed native Chinese eye patients, for the most part children under the age of five years, presenting uniform symptoms of xerophthalmia because of A and D deficiency. Chinese soldiers and laborers studied in the 15-30 age group presented much the same picture, with ocular involvement sometimes so far advanced that total blindness was imminent.

Dr. Holt reviews the literature on vitamin A deficiency; cites night blindness as the most constant early ocular sign; hemeralopia may be present in mild forms, interfering with efficient dark adaptation and visual acuity in dim illumination. Incidence of mild vitamin A deficiency symptoms is cited in 45 cases in a group of 213 children and, from another study, in 26-75 per cent of children from different social groups. Vitamin B₁ is recommended in conjunction with vitamin A to aid absorption.

Toxic amblyopia producing central scotoma is a condition typical of vitamin B shortage, and marked results have been found to follow its administration, while pellagra cases showing retrobulbar optic neuritis with failing vision and photophobia have responded well to the addition to the diet of vitamin B₂ in the form of yeast, though not to fruit juices or cod liver oil. Capillary fragility resulting in a tendency to hemorrhage has responded to treatment with vitamin C, certain studies having shown lemon juice more effective than synthetic forms of the vitamin, possibly because it contains some additional favorable factor. Improvement was reported in the condition of a trachoma patient who had gotten lemon juice in his eyes by accident. Although no clinical studies of human vitamin D deficiency are noted, animal experimentation points to corneal changes resulting from its lack, and some authorities associate it also with the formation of cataract.

Headaches: From the Point of View of the Ophthalmologist, Warren D. Horner, M.D., *California and Western Medicine*, December, 1939, published monthly by the California Medical Association, 450 Sutter Street, San Francisco, California. Headache is

second only to defective vision in the list of complaints presented by ophthalmic patients. If use of the eyes precipitates or intensifies the discomfort complained of, the ophthalmologist is dealing with headache of ocular origin, as negative responses on these two points leave only the possibility of intracranial lesions. Where eye-strain exists, a patient will present related symptoms—blurring or burning of the eyes, and fatigue from close work; afternoon and evening headaches, mounting after protracted reading, driving, or attendance at moving pictures, and less intense on Sundays than during the working week. Type and location of pain is considered of secondary importance. Dr. Horner discusses the mechanism of headaches originating in organic or functional disorders of the visual apparatus, concluding that ocular headache in and about the region of the eye denotes local pathology, often accentuated through the sympathetic nervous system, or a condition within the brain or affecting nerves referring to the eye in such a manner as to simulate local irritation or congestion. Local factors involved in producing headache are enumerated as disturbances of refraction and accommodation; disturbances of ocular motility; disturbances of retinal function; and congestive states in and about the eye. Eye headaches in young people result in very great degree from astigmatism, and ocular headache in general is most commonly found to relate to hyperopia, and to mixed and myopic astigmatism.

The Ophthalmological Aspects of Disturbances of the Endocrine System, Elias Selinger, M.D., *Illinois Medical Journal*, February, 1940, published monthly by the medical profession of Illinois at 715 Lake Street, Oak Park, Illinois. Defines the dilemma of the ophthalmologist when confronted with a persistent ocular condition which arises indirectly from systemic causes and is unresponsive to local treatment—particularly in patients presenting no picture of focal infection which can be confirmed by findings of the internist or other consultants. Admitting that the specialization of physicians in endocrinology is comparatively new, and that over-enthusiasm is not uncommon in this field, Dr. Selinger deplors the fact that vision may be permanently sacrificed through failure of the general practitioner or ophthalmologist to comprehend the importance of adequate investigation into possible endocrine imbal-

ance. Briefly reviewing the acknowledged interrelationships of the glands of internal secretion, he presents a general classification of ocular findings allied to endocrine disease: hyperthyroidism; hypothyroidism; parathyroid insufficiency; tumors of the pituitary gland; functional derangement of the pancreas, gonads, adrenals, and liver. There can be little doubt that many ocular symptoms are related to endocrine dysfunction; some few are quite universally recognized, but it is felt that an impressive further list may frequently be regarded with suspicion. Dr. Selinger recommends routine examination of the endocrine system in cases presenting intractable iridocyclitis, papillitis, blepharospasm, and retrobulbar neuritis.

Book Reviews

A MANUAL OF DISEASES OF THE EYE, Charles H. May, M.D. Sixteenth Edition. Baltimore: William Wood & Company, 1939. 515 p. ill.

This latest edition of "May" is, in all respects, worthy of its predecessors. The information is presented concisely, in a logical sequence. Academic discussions and moot questions are deliberately avoided, so that the student is presented with an orderly array of practical and accepted facts, as we know them. The leading paragraph of each chapter, which presents the anatomy and physiology of the part under consideration, is a gem of succinctness.

In this new edition, which has been carefully revised, the subject matter has been brought up to date and many new illustrations have been added. (We are glad to see that others, reminiscent of the gay nineties, have been deleted.)

The book is well indexed, with occasional cross references in the text. The format is pleasing and the type is large and clean.

May's book is a good investment.

—WILLIS S. KNIGHTON, M.D., F.A.C.S.

MANUAL OF DIRECTIONS FOR GATES READING READINESS TESTS AND GATES READING READINESS TESTS. Arthur I. Gates. New York: Bureau of Publications, Teachers College, Columbia University, 1939.

The Gates Reading Readiness Tests, as explained in a comprehensive manual of directions, were constructed to measure readiness for beginning reading, to predict the rate of development of reading ability and to diagnose the pupil's status, thus revealing his needs in each of the several most important abilities required in learning to read.

The author suggests that a composite or average of the scores from the several sub-tests is best to use for determining the stage of readiness at which the pupil has arrived, but that this composite average gives only general information and is not diagnostic. The author explains in the manual that the tests presented were selected after a series of investigations covering a number of years.

The tests consist of:

1. Three pictures; the examiner makes all statements regarding the situation or objects in the pictures and requests the pupil to carry out instructions by marking crosses or other symbols on the pictures.
2. Word matching.
3. Word-card matching.
4. Rhyming tests
5. Reading of letters and numbers.

These tests measure five important abilities for reading readiness. The author suggests, however, that several other abilities are worth exploring. General directions are presented for giving the series, and careful, specific directions for each test, together with directions for scoring. Emphasis is laid on using the test scores as a guide in instruction; thus, if a pupil's score is low in the first test, he should have pre-reading activities in looking at and talking about pictures. If he scores low in the rhyming test and other forms of word-sound perception, he will need ear training.

Percentile scores are given by the author showing what may be expected of the pupils. Thus pupils having percentile scores 80 to 100 have the ability to learn rapidly with minimum study and should be able to read at sight 2nd and 3rd grade material, while at the other end of the score scale, children having percentiles below 10 will need weeks or months of reading readiness before undertaking typical pre-primer work. However, the author warns that it is impossible to draw a sharp line between those ready and not ready to begin reading, but wisely recommends that the teacher use the results in the study of her own individual pupils. The author emphasizes the importance of vision and hearing tests, and that all suffering from visual and auditory defects be given the necessary attention.

In the first test it is necessary to have many details in the pictures. These may at first prove somewhat confusing to the young child who is not used to close eye work. The examiner will do well to take this into consideration. The printing and the pictures of the other tests are in good size and the type is clear and well chosen. Both tests and manual should be of great value to those interested in beginning reading.

YOUR HEALTH DRAMATIZED: Selected Radio Scripts, W. W. Bauer, B.S., M.D., and Leslie Edgley. New York: E. P. Dutton and Company, Inc., 1939. 528 pp.

The thirty-two radio scripts in this book—most of them for fifteen-minute programs—provide valuable study material for anyone engaged in public health education. Five different ways in which they may be used are called to our attention: as actual broadcasts; simulated broadcasts; stage plays; informal classroom plays; and as dramatic readings. Helpful suggestions are made for each type of presentation.

The material is based largely on a series of actual broadcasts which received first award at the Ninth Annual Meeting of the Institute for Education by Radio in 1938. Dr. Bauer is Director of the Bureau of Health Education, American Medical Association, and Mr. Edgley is on the staff of the National Broadcasting Company. Their collaboration has produced a volume which should be exceedingly helpful to every health educator.

One of the scripts, entitled "Seeing and Hearing Well," is prepared in two parts which can be used separately or together by making a few simple changes in the opening and closing announcements. The first part, dealing with the importance of eyesight, shows the harmful results from refusal to wear glasses, and exposes quacks whose methods may injure eyesight.

—DAVID RESNICK

READING READINESS, M. Lucile Harrison. Revised and Enlarged Edition. Riverside Press, Cambridge, Mass.: Houghton Mifflin Co., 1939.

The author's revision and enlargement of her earlier work on the same subject is the result of her realization that, until recently, reading readiness has been concerned only with preparing the pupil for the initial reading program in the elementary school, whereas the present need is for the preparation of reading at all educational levels at which reading is used as a tool for learning.

Part I of the new edition is designed primarily as an aid to kindergarten and first-grade teachers and presents much of the material in the earlier volume. Part II is concerned with aids to teachers at all levels beyond the preparatory period.

In Chapter IX, "The Instructional Program for Readiness to Carry Out the Thinking Side of Reading," the author summarizes four instructional jobs in the reading readiness program: developing the necessary concepts with which to read; building vocabulary, including the necessary words as carriers of meanings; increasing the ability to understand sentences; developing interests in the minds of pupils for reading specific material so that the interest in the achievement of meaning in reading shall be at a high level.

Increased interest in reading problems during the last decade has resulted in such a vast number of books on the subject that it is difficult to find material that has not been presented in one form or another. It is therefore the more noteworthy that the author has been able to develop so many interesting and helpful suggestions. The material is clearly presented and the very full bibliography should prove an excellent source of reference. The list of books for children on the preparatory level is very helpful. It might have been well to indicate pre-primer material that is available in the size and kind of type that is acceptable for the young child.

The typical case study presented includes an individual chart for reading readiness which should greatly assist teachers in making and keeping records.

Briefer Comment

SAFETY EVERY DAY, Herbert J. Stack, Ph.D., and Esther Z. Schwartz. New York: Noble and Noble, Inc., 1939. 128 p.

"Safety is, after all, not something to be memorized, but rather something to be lived." Reasoning that children will not acquire safety habits through learning rules or words, but rather by concrete experience and resulting attitudes which tend to insure safety in any life situation presenting an element of danger, the authors of this attractive little book have interpreted in terms of *positive* safety attitudes and behavior the normal, everyday activities of the average school child throughout the year. Brief and telling fictional safety episodes printed in large, clear type, constituting a supplementary reader for primary grades, illustrated by simple and realistic photographs of typical children, make up this text. Exer-

cises have been provided at the end of each chapter, designed to suggest situations and circumstances common to children's study and play in which related safety habits can be applied and practiced.

HEALTH OFFICERS' MANUAL, J. C. Geiger, M.D., Dr. P.H., Sc.D., LL.D. Philadelphia: W. B. Saunders Company, 1939. 148 p.

This is a volume based on the personal experience of the author as Director of Public Health for the City and County of San Francisco, California, and prepared especially for health officers, public health administrators, and all others concerned with the administrative and technical problems of organized public health work. It is suggested in the preface that the present organization of the San Francisco Public Health Department has been utilized as a model in preparation of the present manual, not because of its perfection but since its relatively broad fields of public health work are reasonably representative. The introductory chapter covers organization of a public health department and includes methods of educating the public, training personnel, and preparing a budget. In the section on medical services are recommended the reporting and isolation of ophthalmia neonatorum and trachoma cases, and the exclusion from attendance at school of children with acute contagious conjunctivitis. The section devoted to child hygiene does not overlook early correction of remediable eye defects through the good offices of well baby centers, routine eye examinations in and outside of school, and maintenance of classes for partially-seeing and otherwise handicapped children. The opportunity afforded the visiting nurse for prompt recognition of need for preventive or corrective eye treatment is stressed in a discussion of the functions of public health nursing. Further chapters concern the establishment of departmental records and statistics, and the problem of good inspection and control.

PRIMER OF ALLERGY, Warren T. Vaughan, M.D. St. Louis: The C. V. Mosby Company, 1939. 140 p.

Dr. Vaughan's latest "guidebook for those who must find their way through the mazes of this strange and tantalizing state," an outgrowth of earlier efforts to advise both physician and patient, is designed as a companion piece to the same author's *Practice of*

Allergy. The information—some sections taking the time-honored and popular form of questions and answers—is presented with a light touch, heightened by use of Webster cartoons and other amusing line drawings, but fundamentally the presentation is sequential, lucid, and understandable. Specifically the text alludes only in passing to ocular manifestations of allergic conditions, and then only to commonly recognized conditions. In a final chapter are contained a suggested bibliography for further lay study; general directions to the sufferer with hay fever, asthma, allergic eczema or indigestion; and diet charts and outlines for individual record-keeping of symptoms by the patient.

YEAR-BOOK OF LABOUR STATISTICS, 1939. Geneva: International Labour Office, 1939. 239 p.

This fourth issue follows the established form of presentation, quoting figures supplied by official government publications or bureaus of 57 countries throughout the world. The tabulated material and a text in both French and English cover general levels of world employment, and employment and unemployment data by industry; hours of work by industry, and normal weekly work hours by industry; studies of wages per hour, and salary scales by industry; tables showing monthly rents of workers' dwellings; emigration and immigration figures; summary of industrial disputes, strikes and lock-outs; and world indices of economic activity. No survey of public health or industrial accident problems is included.

Editor's Note.—A letter from Dr. Park Lewis calls attention to the following corrections in his review of Anderson's "Hydrophthalmia or Congenital Glaucoma," appearing on page 79 of the March REVIEW. Line 10 should read "not incompatible with fairly good sight . . ." Dr. Lewis writes further, "I was in error in saying that Dr. Anderson had not referred to Dr. Barkan's new goniotomy measure. I am apologizing for the omission, and hope it may be corrected in the next number of THE SIGHT-SAVING REVIEW."

Current Publications on Sight Conservation

Note.—The National Society for the Prevention of Blindness presents the most recent additions to its stock of publications. Except for the more expensive ones, single copies are sent free upon request. Unless otherwise specified, they are reprinted from THE SIGHT-SAVING REVIEW. New publications will be announced quarterly.

330. The Attitude of the Social Security Board Toward Prevention of Blindness, Ruth O. Blakeslee. 20 p. 10 cts. Discussion of Board's rôle in blindness prevention, and recommendations for state aid administration.

331. The Place of Medical Social Work in Ophthalmological Services, Edith M. Baker. 8 p. 5 cts. Outlines the broadening functions of medical social eye service workers in administrative and educational fields.

332. Blindness from Glaucoma Can and Should Be Prevented, Park Lewis, M.D. 4 p. (\$1.00 per C; \$7.50 per M.) An eloquent plea for concerted efforts to eradicate glaucoma through early detection and treatment.

333. Sun Glasses, Arno E. Town, M.D. 12 p. 5 cts. A lucid and welcome discussion, supported by survey findings, of a seasonable eye health and comfort problem.

D128. Protecting Eyes in Industry. U. S. Department of Labor Bulletin No. 37. 18 p. Addresses presented at the industrial session of the Society's 1939 Annual Conference, by Louis Resnick, Leonard Greenburg, M.D., and Verne A. Zimmer.

D134. Development of the Eye, Willis S. Knighton, M.D. 8 p. 5 cts. Brief discussion of human eye evolution, presented during luncheon session on the preschool child, at the Society's 1939 Annual Conference. Reprinted from *Archives of Pediatrics*, April, 1940.

D135. What the Pediatrician Might Do to Save Sight in the Preschool Child, Philip Moen Stimson, M.D. 4 p. (\$1.00 per C; \$7.50 per M.) Paper presented at the luncheon session on the preschool child at the Society's 1939 Annual Conference. Reprinted from *Archives of Pediatrics*, May, 1940.

D136. Whom Shall I Consult—Optician, Optometrist, Oculist, Ophthalmologist, or Ophthalmic Physician? L. L. McCoy. 4 p. (\$1.00 per C; \$7.50 per M.) Reprinted, with additions, from *Hygeia*, December, 1930.

D137. Ocular Factors in Poor Readers in the Saint Louis Public Schools, Frederick O. Schwartz, M.D. 4 p. (\$1.00 per C; \$7.50 per M.) Analysis of a study of eye deficiencies and reading disabilities, with summary of subsequent progress in reading. Reprinted from *American Journal of Ophthalmology*, May, 1940.

Contributors to This Issue

Dr. Moacyr E. Alvaro, whose paper prepared jointly with **Mrs. Eleanor Brown Merrill**, this Society's Executive Director, appears in this issue, is a prominent Brazilian ophthalmologist, representing his country on the Board of the International Association for Prevention of Blindness.

The author of our leading article on federal prevention of blindness attitudes is **Ruth O. Blakeslee**, Chief of the Division of Standards and Procedures, Bureau of Public Assistance, Social Security Board, Washington, D. C.

The radio address on sight conservation here presented is one of many contributions from **Dr. Ellice M. Alger**, New York ophthalmologist, and a member of the Society's Board of Directors.

Edith M. Baker is Principal Consultant in Medical Social Work of the Children's Bureau, United States Department of Labor, Washington, D. C.

The FORUM presents a most timely paper on the wearing of sun glasses, prepared by **Arno E. Town, M.D.**, New York ophthalmologist and a new contributor to the REVIEW.

Readers will enjoy the quaint picture of San Francisco's Chinese sight-saving class children, as seen by their teacher, **Ann McHugh**.

The REVIEW welcomes the opportunity to publish a recent statement by **Dr. P. Bailliart** of Paris, President of the International Association for the Prevention of Blindness.

Book reviewers: **Willis S. Knighton, M.D.**, of New York City; **David Resnick**, Publicity Director, National Society for the Prevention of Blindness.

Possibilities of Restoration of Sight and Prevention of Blindness in the Aid to the Blind Program*

Anna M. Harrison

DESCRIBES the work of the State Department of Public Welfare in restoring sight and preventing blindness in Louisiana.

WHEN we stop to think about the blind as a group of handicapped people whose desires, hopes, and innate abilities are no different from those of seeing people, is it not a reflection on our society that until about 73 years ago little thought was given to assisting the needy blind? The first monetary aid to the blind was given in 1866 when New York made "donations" from city funds. Other states later followed this example. The protection and restoration of sight were not of vital interest to the world until 1884, when Dr. Karl Sigmund Cr  d   published his treatise on ophthalmia neonatorum, and Dr. Ernest Fuchs made his studies on the prevention of blindness. Following this, some sporadic yet very earnest attempts were made in the direction of education, steps taken to prevent communicable eye diseases from entering the country, and laws passed prescribing treatment for the eyes of the newborn, but not until within the last decade have real strides been made in the field of public welfare. It would be impossible for the states to revert now to former methods of handling the needy, the aged, and the blind. Inasmuch as time did not permit a comparative study of the meaning of the social security program to the blind in each state, Louisiana alone is being considered, for its program is more or less typical, if not a step ahead, of what is being done by other states to help this group of handicapped people.

* Presented at National Conference of Social Work, Grand Rapids, Michigan, May 28, 1940.

The status of the blind in Louisiana has changed greatly within the past ten years. Study shows that, prior to the signing of the Social Security Act on August 14, 1935, provision for the blind in Louisiana showed little planning. The first recognition of the special problems of the blind resulted in the establishment in 1852 of a state school for white children only. Not until 1922, or 70 years later, was there a school for the colored. Prior to 1924, the blind adult either supported himself as best he could or was taken care of by his family, as he received no pension nor any help from the state until that year when the first legislation for the blind was passed. This act defined the term "blind person" as "any person whomsoever who is totally blind in both eyes or any person whomsoever whose sight with the use of both eyes is so impaired as to make the sense of sight of no practical benefit or help in the pursuit of business, or in the course of earning a living." It exempted him from payment of license privilege or vocational tax in order that he might engage in private enterprise. There was no mention in this act of the disabled needy blind person who was not able to engage in remunerative work.

In 1928 a second act was passed. It created a State Board for the Blind and outlined its duties, functions, and powers. It defined a needy blind person as "one who is blind or partially blind, who, first, is 60 years or more; second, who is mentally incapacitated or has such physical handicaps other than blindness as to make him or her incapacitated for any kind of vocation." Records of the State Board for the Blind indicate that the applicant's blindness was established by a certificate from a recognized ophthalmologist. The doctor was not required to indicate the degree of applicant's blindness or to diagnose the cause. After blindness was established from a medical standpoint the representative from the State Board for the Blind—an untrained person—determined whether or not the applicant was needy. The middle-aged blind person without physical or mental handicaps was not mentioned. The act provided relief for "needy" blind persons, and fixed the maximum benefit at \$25 a month. No minimum benefit was specified. Additional duties of the Board included the preparation and maintenance of a complete register of the blind, giving condition, cause of blindness, capacity for education, and industrial training. It also provided

for suitable vocational training and established workshops for the blind and assisted in marketing products of blind workers. In 1934 the act was amended to provide that the appropriation for each blind person would not be more than \$25 nor less than \$10 monthly, and the police jurors or board of county commissioners appropriated the necessary sums.

Present Function of Public Welfare Departments

Since 1935 the picture has changed considerably. Relief in Louisiana is being administered by the State Department of Public Welfare, and all blind persons who were formerly assisted by the police jurors in their respective parishes have been transferred to the local parish Department of Public Welfare, which agency decides if a person qualifies in point of need. If the investigation made by the Department of Public Welfare establishes need, a medical examination is requested.

Perhaps the most interesting difference regarding those patients now declared blind is the fact that, whereas formerly a patient was pronounced blind and eligible for relief, medical follow-up was often not done because those referred were the hopelessly blind. Now, after ocular examination, the patient with remediable defects is referred for treatment which is provided if he wishes to accept it. And, going one step further, not only are the totally blind examined and treated but also the visually handicapped—those for whom vision may be restored and permanent blindness prevented. While this last group of patients is not eligible for assistance in the category of Aid to Needy Blind because of federal regulations, assistance is given from state funds to prevent blindness.*

Medical Social Work for the Blind

Inasmuch as Louisiana is one of the few states having a state medical social worker for the blind, and is very anxious for suggestions, the program in effect will be outlined. Louisiana has approximately ten examining eye physicians whose offices are located throughout the state, and one state reviewing ophthalmologist, residing in New Orleans. The medical social worker for the blind has her office in the New Orleans Charity Hospital, the largest of six

* McKay, Evelyn: *The Blind under the Social Security Act*.

general state hospitals. This hospital has a bed capacity of more than 3,000, equally divided between white and colored, and also has daily eye clinics, both races being treated. This location has been selected because a large percentage of the Aid to Needy Blind cases are patients either in the hospital or in the out-patient department, which treats nearly 500 weekly in its eye clinic. The state reviewing ophthalmologist is one of the visiting staff. Many ocular examinations to determine blindness are made in this clinic and many patients from the entire state may and do return there for surgery and further care. When an applicant appears eligible for Aid to Needy Blind, the Department of Public Welfare worker from the patient's parish sends to the medical social worker for the blind a "social summary," along with the request for ocular examination to determine eligibility. The outline for this summary was drawn up by the state reviewing ophthalmologist, who appreciates the social as well as the medical aspects of blindness, and contains medical and social information which should be helpful to the examining eye physician. The outline suggests the following points as being of importance: the care the patient received at birth; were drops placed in the patient's eyes; did he sustain a birth injury; what diseases did the patient have; and all the information possible relating to the patient's blindness. Another section of the outline is devoted to the patient's family, the incidence of blindness in the family, and the diagnoses—if possible, with source. Still another section requests information regarding dietary habits, and another asks for the resources available for recommended treatment. The summaries which follow the outline have been very helpful to the eye physicians at the time of examination and particularly to the reviewing ophthalmologist when the cases are studied and analyzed for statistical purposes.

When this social summary is received by the medical social worker for the blind, an appointment for an eye examination is made by her and she sends both the social summary and the medical blanks to the examining physician. These doctors have been selected by the state medical advisory committee of the Department of Public Welfare from the eye physicians who are in good standing in Louisiana and are listed in the American Medical Association Directory, and approved by the state reviewing ophthal-

mologist. They are either specializing in diseases of the eyes or are treating diseases of the ear, nose, and throat as well. The maximum distance a patient has to travel to be seen by an eye physician is approximately one hundred miles. The form used for the report on eye examination is the one drawn up by the Social Security Board, with which you are no doubt very familiar. After completion of examination, the medical blank, together with the social summary, is returned to the medical social worker for the blind. She presents it to the state reviewing ophthalmologist, who accepts or rejects the application for Aid to Needy Blind according to the contents of the medical report.

The Louisiana Public Assistance Act No. 53 of 1936 provides that a "person shall be considered blind who has no vision, or whose vision with correcting glasses is so defective as to prevent the performance of ordinary activities for which eyesight is essential." In accordance with the authority granted in the law, the State Department has promulgated the following more specific definition of blindness to determine eligibility: "Vision insufficient for use in an occupation or activity for which sight is essential, usually vision of less than 20/200 or restricted visual acuity in the better eye with correcting glasses, or a disqualifying defect in the visual field."* There are times when the report is accepted provisionally. This occurs in cases of cataracts, or acute or chronic inflammations, when the examining physician feels vision can be improved. The patient is given assistance for the time he is blind and when cataracts have been removed, glasses fitted, or the inflammation has disappeared, the patient is re-examined to determine his eligibility. He is kept in the category of Aid to Needy Blind only if his vision is still 20/200 or less after correction.

Although all patients have not been examined in the same clinic and, therefore, are not known to the medical social worker for the blind, all medical reports are received by her. Her office has been of necessity a centralizing agency. The reasons for this are obvious. She prevents the scheduling of too many examinations with the same doctor on the same day; she schedules re-examinations so the patient will be seen by the physician who first saw him, and she

* *Manual of Procedures*, State of Louisiana Department of Public Welfare.

keeps a file of all patients who have sought assistance as needy blind or who are actually receiving it.

In Louisiana, as of February, 1940, there were 1,032 grants representing 1,875 persons receiving assistance in Aid to Needy Blind category. This is 1.55 per cent of the total number of persons receiving assistance from the Department of Public Welfare. As compared with the United States census figures of 1930, which reported 1,252 blind in Louisiana, this would seem very high, for the census figures include all blind in Louisiana and this number of 1,875 covers only the needy blind. The discrepancy is no doubt accounted for by the fact that only the obviously blind are enumerated in census figures, whereas the Department of Public Welfare figures comprise all needy persons who apply for relief and have vision less than 20/200. To the census enumerators many of these persons would not be classed as blind. This very inclusion of border-line cases is an indication that the Aid to Needy Blind program not only takes care of those who are irrevocably blind, but is vitally interested in restoration of vision and prevention of blindness.

Constructive Plans for Applicants

When patients have been accepted as Aid to Needy Blind cases by the Department of Public Welfare, their grants cover food, clothing, shelter, fuel, utilities, insurance, incidentals, and medical care. If the medical report indicates that vision may be restored with surgery or treatment, stress is laid on this aspect of the patient's needs. At first only persons between the ages of 16 and 64 were eligible for Aid to Needy Blind. At present all blind, irrespective of age, are included in the category. Very often, when there is a doubt as to the proper category, a medical report may be the deciding factor, especially if the patient needs ocular treatment, and, in the case of persons over 65, if dependency is due to blindness rather than to age.

In order to demonstrate what has been done from a constructive standpoint for Aid to Needy Blind cases, two studies have been made with particular attention to end results. The first study comprised the first 700 patients who were eligible for relief. It revealed many interesting things. There were 489 patients, or practically

70 per cent, for whom nothing could be done to restore vision. This figure seems startlingly large but it must be remembered that the obviously blind client was the client to be referred for aid in a new program, and many had been hopelessly blind for many years. For the remaining 211 clients the picture was not so discouraging. Surgery was recommended for 90, treatment for 109, glasses for 12. The following results were obtained: 17 patients were taken out of the category of Aid to Needy Blind; nine of these had cataracts removed, operations performed and glasses fitted, with vision in some cases restored to 20/30; three trachoma patients regained vision through treatment, while five patients had glasses fitted which improve vision. These 17 patients have not all had their assistance grants closed, as some were transferred to other categories, being too old or physically unable to work. Others no longer needed help because they were found to be employable.

The 194 other patients for whom treatment, surgery, or glasses were prescribed, and who still remain in the category of the blind, represent a very interesting group of persons. They might be divided into those who accepted the doctor's recommendations; those who refused them; and those who were prevented from following them through physical disability or lack of resources. Those who were willing and able to follow the doctor's suggestions numbered 108. This number may be broken up into cataract operations, 15; other surgery, nine; glasses, seven; ocular treatment, 40; anti-luetic treatment, 37. The second group of 34 represents the refusals: one treatment case; 19 surgical cases (other than cataract); and 14 cataract operations. The remaining 52 were less fortunate. While ocular care in itself was indicated for 14, physical disabilities, such as paralysis, senility, feeble-mindedness, and tuberculosis contraindicated any attempt at surgery. Four patients expired before operations could be scheduled, and six persons had immature cataracts which did not warrant removal. Twenty-eight needed anti-luetic treatment and could not receive it because of the remoteness of their homes or because there was no venereal disease clinic in the parish in which they were residing. The last three groups, those who accepted treatment, those who refused it, and those for whom it could not be arranged, are our particular concern for they are the patients for whom there is a chance that vision might be restored.

A second analysis of end results comprises the next 600 patients referred for eye examinations by the Department of Public Welfare and who qualified for relief. It gives a more reassuring picture. Of these 600 referred, only 282 (or 47 per cent) were hopelessly blind as compared to the 70 per cent hopelessly blind in the first study. Of the remaining 53 per cent, or 318 patients, 20⁷ already have been taken out of the category of Aid to Needy Blind because of restoration of vision through treatment and surgery. This figure represents nine patients who had operations for removal of cataracts and who were fitted with glasses; nine patients whose vision was improved with glasses after treatment; and two who were helped with treatment alone. One hundred and twenty-nine patients have accepted the doctor's recommendations and have had surgery performed or have received treatment, ocular or anti-luetic. Thirty-two others—more recently referred patients—have immature cataracts and are not ready for surgery at this time, and 21 who are to receive various types of treatment later on must be re-examined. This group is considerably larger than the corresponding group in the first 700 cases, because those of the first group were referred sufficiently long ago to have had recommendations carried out or at least one or several attempts have been made to this end. The number of patients who could not follow anti-luetic treatment in this last analysis is practically the same as in the first (29 as against 28), but the number who were not physically fit for ocular surgery is considerably less (12 patients). The one discouraging figure in this second analysis is the number of refusals to submit to either surgery or treatment. There were 75 such cases as against 34 in the first group. Is this due to lack of interpretation, fear of surgery, or fear of being removed from the relief rolls? Perhaps a bit of each. Failure on the part of the client to submit to recommended treatment is a problem met by all social workers and it is hoped that the discussion and exchange of experiences following this meeting will give to us all a broader vision, a clearer understanding, and increased skill in meeting this basic need if the work of the doctors is to be most effective.

Facilities Available for Ocular Treatment

Any attempt to restore vision or prevent blindness presupposes: (1) availability of medical care by an eye physician, which includes clinics or hospitals where laboratory tests can be made as diagnostic aids, and venereal disease clinics where anti-luetic treatment can be secured; (2) interpretation to the patient so he will accept the ophthalmologist's recommendations and interpretation to the agency which is providing for the client's needs.

In Louisiana, where there are two large general state hospitals and four small area ones for the indigent, it will not be difficult to arrange for ocular care in the very near future. These hospitals are situated geographically to serve several parishes (or counties). When an eye department is functioning in each, indigent persons will be able to have hospital as well as clinical care in the center near their homes. At present patients are examined and treated by ophthalmologists located in the largest cities of Louisiana. When surgery is necessary, patients are sent to one of the two state hospitals or to the one area hospital which has an ophthalmologist on its staff and is equipped for ocular surgery. The fact that the area hospitals have not yet opened their ophthalmological departments, with the exception of one, apparently has been no hindrance in providing medical care, as patients have been sent to the two state hospitals or have received treatment from one of the ten examining ophthalmologists. On the other hand, is it one of the reasons why treatment has been refused? The blind person is inevitably more isolated than patients with other handicaps, as in a strange environment he is dependent on others for meeting his simplest needs. Add to this adjustment dependency on strangers, removal to a distant hospital where friends and relatives cannot visit because of expensive transportation, and do we have one of the answers to refusal of treatment?

Overcoming Ignorance and Fear

In Louisiana, where free medical treatment has been one of our traditions, providing ocular care is not as difficult as interpreting to the patient the desirability of securing it. It is an understatement to say that ability to interpret is the social worker's most

valuable tool. She must interpret to the doctor the fears of the client and the limitations of the agency, to the community its pressing unmet needs, to the social agency the applicant's diagnosis and prognosis for restoration of vision, and to the patient something of the nature of his condition and the benefits to be derived from following recommendations.

There is so much ignorance on the part of the public regarding eyes, the diseases which affect them, the proper way of treating them, and even the proper persons to treat them, that she can never over-interpret. Applicants for Aid to Needy Blind come for the most part from the public agency where case loads are large and contacts made with clients at rather long intervals. Much of the interpretation to the patient will be done by the case worker of the non-medical agency, as it must be remembered that she is the one person who will have long-time, regular contact with the family of which he is a member. How can she convincingly discuss advisability and even necessity of treatment? Yet every case worker, no matter in what categories her case work falls, is called upon to interpret eye conditions. The set-up in Louisiana makes it imperative that each case worker do it.

As has been stated above, when the "Physician's Report on Eye Examination" is accepted, it is returned to the patient's case worker with an explanation of the cause of blindness and the doctor's recommendations, and at this point it must be remembered that the patient many times is seen in a center where neither the state medical social worker nor any other medical social worker is available. If an operation seems indicated to the examining physician, it very often falls to the case worker to discuss this with the patient, as the report, while sent through the state medical social worker, goes many times without any but the doctor's interpretation to the patient. The state reviewing ophthalmologist does not have every patient come to New Orleans for re-check, but makes his decision on the information contained in the report from the examining doctor. Therefore, no medical social worker has ever seen this patient.

How can the social worker in a distant county or parish dispel fears, clear up certain doubts, explain why an operation is advisable or even imperative, if her knowledge is limited? We do not want to coerce our clients nor do we have the right to do so; yet do we

want them to choose to neglect their eyes and refuse a chance of restoring or improving vision? The case worker should be the one to help the client at such times. She knows him more intimately, is familiar with his environment, and she should understand his hesitancy in accepting recommendations. The state eye worker for the blind or the eye worker in any given medical institution then becomes responsible for interpretation to this other worker, so that she in turn may win the co-operation of the patient. Those of us who work directly with eye patients know that one interview rarely convinces a patient or a parent of the need for surgery or long-time and often painful treatment. Therefore, in this case-work-by-proxy situation, can we expect quick results?

Cataracts

It is regrettable that large numbers of our patients, particularly those in rural areas, remain blind from cataracts when excellent results are being had from operations. The rural patient fears the hospital. It is a traumatic experience to have to leave the familiar environment of home for an institution where he has a double adjustment to make, to new voices and to new surroundings. The operation itself is sometimes painful, and frequent returns to clinic are a real hardship. Fear is as great a deterrent as ignorance, especially when it is coupled with prejudice and superstition.

The social worker would find that knowledge of eye disease would be a great help in dealing with her clients, no matter in what category they are assisted, but especially for the category of Old Age Assistance. One of the results of old age is lowered visual acuity. The aged are becoming more and more our problem because of their relative increase in numbers, and preserving their vision will constitute one of our responsibilities as social workers.

Other Remediable Eye Diseases

Not only with cataract cases is interpretation necessary but also with those patients who have non-congestive glaucoma of the painless type, which causes so much damage insidiously. These patients cannot understand why observation by an eye physician is necessary when vision is not improved. Patients with luetic eye conditions honestly question the continuance of anti-luetic treat-

ment after their eyes are cured. They, too, need patient handling to encourage them to follow treatment, so as to preserve vision or prevent serious systemic manifestations of the disease. Therefore we must expect to meet these fears, arguments, and superstitions one by one, and our correspondence files will grow and grow for no one of us can anticipate in any given case the problems which will arise, but through a strong co-operative relationship between the eye worker and the family case worker each stumbling-block will be hurdled and ultimately, in many more cases, treatment effected.

Psychological Factors in Examination and Diagnosis

Fear and ignorance are not the only difficulties one meets in working with this group. Besides the fear of operation and the unwillingness to follow treatment, there is the difficulty of fluctuation in vision. It has been noticed that a few patients who report for the initial examination to determine blindness have lower vision at that time than at any other clinic visit. Is it because the patient has been told he is being examined to determine his eligibility for Aid to Needy Blind, and fears that if he does not qualify in that category he will not be given assistance? Does it not fall to the interviewer of the relief agency to prepare the patient so that he will have no fear of being found ineligible? Is our drive to catalogue people forcing patients to desire or even feign blindness in order to get assistance? What does this mean to the patient and what does it do to him? Without proper interpretation that assistance may be given in some other category, the patient gets the impression that he must be blind or do without relief.

Psychologically, blindness, real or pseudo, has a paralyzing effect, due undoubtedly to centuries of neglect of the real potentiality of the blind. In other relief categories we have the psychologically unemployable and we have accepted these men and women who have developed a feeling of inferiority, due often to the years of depression during which they sought work without success, and who are convinced that they cannot work and compete in normal industry. Through no fault of theirs they were unemployed and now years of dependency have taken from them all confidence in themselves, and when a job turns up they have convinced themselves

that they could not hold it. This fear manifests itself in all sorts of nervous and physical symptoms.

The pseudo-blind are the victims of the same delusions. They admit to almost complete dependency and retire wholly within themselves. Two or three patients have been known to us who received treatment and glasses and subsequently were pronounced ineligible for Aid to Needy Blind because of improvement in vision. Shortly afterwards they returned to the doctor, complaining of inability to see. No physical bases for their blindness were found, yet repeated attempts failed to improve vision. This fear on the part of the patient that he will not qualify for Aid to Needy Blind springs from his lack of security, as the patient knows and the social workers know, too, that unless he can fit into one of the Social Security categories his chances of assistance may be minimized. These clients who fear becoming ineligible for Aid to Needy Blind do have ocular defects, they do get to see an eye physician and actually receive treatment. This is constructive from a medical standpoint, and in the final analysis the patient almost always reaps many benefits.

While the public program assists unemployables and some employables, it is not able to help all because of lack of funds. Therefore, the well-intentioned interviewer tries to fit the patient into a Social Security category. If he is under 65 years and has an eye complaint, the category of the blind seems to be the solution. The relief worker's position is a difficult one. She is faced with a large number of applicants for relief and, in her desire to help as many as possible, tries to have her clients certified in Social Security categories. While no one has the answers to all the problems, it seems that sufficient interpretation and a large enough relief budget for unemployables and employables would be a tremendous help, as we know that insufficient relief appropriations are causing physical and psychological illnesses.

Opportunities to Restore Sight

The opportunities for restoration of vision in an Aid to Needy Blind program are many. First of all, the state agency attracts many hundreds of applicants yearly. Medical examinations of all applicants are required to determine eligibility. Ocular examina-

tions are requested for those with visual complaints. Thus, before the case has been accepted, an initial step in restoration of vision has been taken. Those needing medical and ocular care in Louisiana may be treated at one of the state hospitals. The Department thus functions at first as a case-finder, referring the patients to the proper medical institutions. Its next function is that of materially aiding the patient by including in his budget medicines, diets, glasses, transportation to hospitals or clinics. As a rule, eye patients usually report to several clinics, so that medical care for them is an important and sizeable item of their budget. Furthermore, this care is continuous if the doctor deems it necessary. These patients are followed by the medical social worker who schedules re-examinations when they are indicated by the examining physicians, and in the meantime the agency is advised of progress. When vision is restored and further treatment is not indicated, the case workers are notified. Ideally, these patients are assisted in another category until they have been able to adjust themselves to a new way of life or perhaps secure work.

The restoration of vision for these clients is the result of the combined efforts of the examining physicians throughout the state who have given excellent co-operation; of the doctors in the hospitals where patients later receive treatment or surgery; of the state reviewing ophthalmologist, because of his awareness of the constructive possibilities of the program and his vigilance in reviewing and analyzing reports; of the case workers in the agency who are constantly interpreting recommendations to patients and assisting them with material aid in following out these recommendations. In the program of restoration of vision the primary function of the medical social worker for the blind is interpretation to the case workers who are actually contacting the clients. In fact, the rôle of the general medical social worker is becoming one of interpreting to the case worker, as more persons apply for assistance and are referred to medical agencies.

Prevention of Blindness in Louisiana

In Louisiana there is a prevention of blindness program which functions as does the Aid to Needy Blind program with a few exceptions. There is no definition of what constitutes a prevention of

blindness case. The Louisiana Public Assistance Act No. 359 of 1938 states: "Temporary assistance may be granted to any person who is in need of treatment, whether to prevent blindness or to restore his eyesight. Although the person is not blind to such a degree that he is eligible for 'Aid to Needy Blind,' the grant may be used to pay necessary traveling and other expenses to receive treatment from a hospital or clinic designated by the state department. No assistance of this kind may be granted to a person who is reasonably able to pay such expenses without such assistance."* These cases may be referred to the Department of Public Welfare by physician, parish health unit doctor or nurse, teacher, or social worker. The public may apply directly.

The same outline of social data used for Aid to Needy Blind cases accompanies the request for an ocular examination to prevent blindness. The same form, "Physician's Report on Eye Examination," is used, but it is marked for "Prevention of Blindness Only." Examinations are scheduled by the state medical social worker for the blind, who, after examination is made, sends recommendations to the parish worker. The differences are that there is federal participation in Aid to Needy Blind cases, whereas the prevention of blindness program is borne entirely by the state; and whereas in the former all the patient's needs are included in the budget, in the latter the patient may or may not receive assistance only for ocular care. This aid usually includes cost of transportation to clinic or doctor's office, doctor's fee (if a private ophthalmologist is seen), medicines, glasses, diet, or anti-luetic treatment when indicated. As soon as the patient is discharged, the grant is stopped. These persons may not necessarily come from dependent families. They are from the low economic, border-line families whose income prohibits such extra expenses as their eye condition necessitates.

Recently, a review was made of cases referred during a two-year period. About 70 per cent were children. There were over 20 diagnoses, ranging from eye conditions due to syphilis and faulty diet, congenital cataracts and crossed eyes to a simple need for glasses. These patients were referred mostly by the social workers and came from families in which there was a worker on Works Progress Administration, Farm Security Administration, Civilian Conserva-

* *Manual of Procedures*: State of Louisiana Department of Public Welfare.

tion Corps, or National Youth Administration. Thirty per cent were from families of small wage earners not known to any federal or state agency. Teachers referred large numbers of school children, and some patients applied directly to the Department of Public Welfare.

It was evident from the analysis that more interest in prevention of blindness was prevalent in some sections of the state than in others, a number of referrals coming from certain parishes while other parishes referred no cases at all. It has been felt that interest must be aroused in the inactive parishes and interpretation must be given to the active ones, who, in their zeal to prevent blindness, referred a number of patients who needed only glasses. On the other hand, some excellent cases were brought to the attention of the eye physicians, such as congenital and traumatic cataracts, crossed eyes in children, and congenital syphilis causing interstitial keratitis. In adults there were cases of optic atrophy and potential glaucoma. Many persons above 40 years of age were given the benefit of an eye examination by an ophthalmologist, instead of buying glasses in a department store or being tested for them by a non-medical person. Besides getting properly fitted glasses, these patients had a thorough examination of eye grounds, which definitely ruled out the possibilities of latent serious eye diseases. The end results were gratifying; surgery and ocular and anti-luetic treatment were advised and secured, and a larger number were fitted with glasses. While we can actually count these patients as so many definite cases helped, we cannot estimate the constructive work accomplished in prevention of blindness.

Examinations for glasses by an eye physician may be just as much prevention of blindness as taking care of a diseased eye, though not so dramatic. The examined patient becomes eye-conscious and tells others about his experience. However, it would be undesirable for the social worker to become too absorbed in referring patients for glasses when there are more important conditions demanding ocular care. Inasmuch as prevention of blindness must be carried on by the state without federal financial participation, and inasmuch as the state itself has no funds earmarked for this special purpose in the general relief program, the ingenuity and judgment of the resourceful social worker is taxed that the best pos-

sible use of funds be made and the greatest good done for the greatest number. The Welfare Department can only hope to do prevention of blindness work within a limited area, and the welfare worker can start with her own case load and the new referrals coming to the attention of the Department.

Summary

While a state department can do much in restoration of vision and prevention of blindness, to get the best results this program, which has many phases, should have the participation of the entire community. The foundation for such a program is education of the public. This is of prime importance. The state societies for the prevention of blindness can best fill this need. Just as lay groups have been responsible for arousing the public to the problems of tuberculosis and of the crippled child and are making them aware that cancer can be controlled and syphilis stamped out, so can they arouse widespread interest in prevention of blindness.

For obvious reasons, the medical profession does not feel this is its function. The doctors are curing those already afflicted, or are doing research to find new cures and new techniques. Through education of the public, disease should be prevented. Departments of health have much to contribute through supervision of midwives and establishment of venereal disease clinics. The department of education, through the physical examination of every school child and a carefully given visual test, discovers conditions at a time when treatment is most effective. Lay groups may be instrumental in stimulating interest in certain legislation and also in fostering programs which would directly or indirectly prevent blindness. A routine Wassermann on every expectant mother, the establishment of a venereal disease clinic in every parish, an ocular examination as a school entrance requirement, more sight-saving classes in the state for both white and colored children—these are some of the objectives which Louisianians could well foster.

The social workers in a public agency and the medical social workers in hospitals have a unique opportunity for case finding in that they see early cases in which preventive work would be effective. The patients with abnormalities of the eyes, the patients who report to clinics but are not getting their medicines or who do not

understand the importance of following recommendations—these are the clients for whom prevention of blindness is possible. Eye consciousness on the part of the Department of Public Welfare workers alone would mean that 120,335 persons in Louisiana would receive proper eye care when needed. Awareness of ocular difficulties by interviewers, case workers and supervisors is necessary in order for this to be accomplished. Some of the case histories received show that patients have sought treatment from quacks or “traiteurs” and used remedies which definitely contributed to loss of vision. It is hoped that such practices will cease through the vigilance of case workers and the education of the public.

The function of the social worker for the blind in a state agency is still in the formative period, like that of the medical consultant in the field of public welfare. The state eye worker sees only some of the patients for whom restoration of vision or prevention of blindness is being attempted, but through medical social consultation with the case work staff she is able to advise and assist and thus reaches out to a larger group. The Social Security Board has clearly defined the areas in which the consultant can be most effective: she can assist in planning and in developing standards and criteria of performance; she can be called in consultation on specific problems, and she can demonstrate within her area the use of specialized methods for purposes of staff training or public education.*

* *Blakeslee, Ruth O.*: The Use of the Consultant.

Personal Reminiscences*

John M. Glenn

NO one is better qualified to reminisce on the early days of the prevention of blindness movement in the United States than the author, who was a founder of the Society and is today one of the honorary vice-presidents.

THE origin of the National Society for the Prevention of Blindness was due to a happy series of entirely unexpected events which followed one another in close succession, and to the cooperation of enthusiastic persons who let no grass grow under their feet when they set out to create something new to advance the public good.

Russell Sage died in 1906 and left a big fortune to his widow for use in ways that might seem best to her. She wished, first of all, to provide a substantial memorial to her late husband. At her request, several plans were submitted by her legal counsellors, Robert W. and Henry W. deForest. From these she selected one outlining a plan for a foundation to improve social and living conditions in the United States of America. Russell Sage Foundation was thereupon chartered, endowed by Mrs. Sage with \$10,000,000, and inaugurated in April, 1907. She became president of the corporation, and continued as president until her death, shortly before the Armistice in 1918.

In 1903, the legislature of New York, chiefly at the suggestion and urgency of Dr. Park Lewis of Buffalo, had authorized the creation of a Commission to Investigate the Condition of the Blind in the State. This Commission decided to take a comprehensive census of the blind who were living in the state, and engaged Edith Holt, daughter of the publisher, to direct it. Her sister, who had

* Presented at 1939 Annual Conference of the National Society for the Prevention of Blindness, Inc., October 26, 1939.

been the mainspring in the organization of the New York Association for the Blind, co-operated with her, and these wide-awake young women lost no time in appealing to Russell Sage Foundation for a grant enabling their Association to obtain proper office space, and the director of Russell Sage Foundation was impressed with the importance of their work and their efficiency. They got \$12,000 from the Foundation.

Among the trustees of Russell Sage Foundation were two remarkable women, Louisa Lee Schuyler and Gertrude S. Rice. They had been lifelong friends and had served together under the notable United States Sanitary Commission, which took care of the wants of Union prisoners and other victims of misfortune during our Civil War. Miss Schuyler had also been responsible for the founding of Bellevue Training School for Nurses, the first of its kind in this country, and was the prime mover in organizing the State Charities Aid Association of New York. Early in 1908 Miss Schuyler was attracted by a bulky package in her mail, and found that it contained a report of Dr. Lewis' commission. In it were some pictures of children suffering from ophthalmia neonatorum, commonly called "babies' sore eyes," a disease which can be warded off by dropping into the eyes of a baby soon after its birth a solution of nitrate of silver. Under the picture was the legend, "Unnecessarily Blind." Moved by these instances of preventable blindness and its effects, Miss Schuyler determined at once to see what could be done to initiate effective steps for eliminating this terrible affliction. She immediately got some pamphlets written by Dr. Lewis. One of these appealed to laymen for help in securing the adoption of legislation and other measures that would save the sight of babies.

Miss Schuyler suggested to the Executive Committee of Russell Sage Foundation appointment of a special committee to consider the problem of the prevention of blindness in the state. She was named chairman, and Mrs. Rice and myself were the other members of this Russell Sage Foundation committee. Dr. Lewis was invited to lunch with Miss Schuyler's committee and discuss possible ways of having his desires realized. He responded promptly, and on May 9, 1908, there met with these two, Mrs. Rice, Miss Winifred Holt, Mrs. Edward T. Hewitt, and Dr. J. Clifton Edgar. From discussion at this luncheon came the plan to organize a com-

mittee of physicians and laymen, the purpose of which would be the promotion of measures to prevent blindness in New York State. It was agreed that this committee should be a special committee of the New York Association for the Blind, and that Russell Sage Foundation should be asked for a grant to start the committee safely on its way.

In May, 1908, Russell Sage Foundation made a grant of \$5,000 to the New York Committee to cover one year's expenditures. P. Tecumseh Sherman became its chairman, and it was formally organized on June 1. So, within less than two months from the day when Miss Schuyler had been inspired to start an active movement to secure freedom from blindness for many of its potential victims, the movement was effectively launched, and Dr. Lewis saw his fine dream come true.

Next steps were the renting of an office and appointment of a secretary for the New York Committee to carry out its aims. George A. Hubbell became the first secretary; he was succeeded in 1909 by Carolyn C. Van Blarcom.

Among the consequences that followed from the creation of the New York Committee were requests from various parts of the country for information and advice as to how to proceed in planning for prevention of blindness. It was not possible for the secretary to take care of these inquiries in addition to her work for New York; Russell Sage Foundation was therefore asked to make a grant of \$5,000 to its own committee to enable the latter to engage a secretary to carry on work nationally outside of New York. The grant was made in December, 1909, and three months later Samuel E. Eliot was engaged as secretary of the Russell Sage Foundation Committee.

The next important milestone was a small conference called by the Russell Sage Foundation Committee. About 70 people attended. Before adjourning, the conferees passed a resolution recommending the formation of a national organization for prevention of blindness. Dr. Lewis was chosen as chairman, and empowered to appoint a board of directors. This action seems to have been largely inspired by E. Leavenworth Elliott, an illuminating engineer and editor, who saw things in the large and led conference members to believe that large contributions for the support of such

an association could be secured easily from gas and electric companies and others. Another man also first appearing actively on our scene at this conference was Edward M. Van Cleve, who was to become the most important figure in the future of the movement. Mr. Van Cleve was principal of the Ohio Institution for the Education of the Blind and chairman of the Ohio Commission for the Blind. He, with Dr. Hiram Wood, an ophthalmologist from Baltimore, and James P. Monroe, chairman of the Massachusetts Commission for the Blind, were appointed a committee to map out a tentative plan for the organization of the new association.

At a meeting held in March, 1911, this committee recommended formation of an independent national organization. Its aims would include not only prevention of blindness, but also measures for improving the eyesight of people who are not blind. Therefore, the title suggested for the association was "American Association for the Conservation of Vision." The recommendations of the committee were adopted, an excellent board of directors was appointed by Dr. Lewis, and the Association was launched. The question of the respective functions of this new national association and the Russell Sage Foundation Committee inevitably arose.

Messrs. Van Cleve, Wood, and Monroe were deputized to confer with the Russell Sage Foundation Committee and ask that it consolidate with the Association. After careful consideration, the Russell Sage Foundation trustees, in May, 1911, discharged the committee at its request, and authorized transfer to the Association of all the property and assets of the Committee, including the unexpended balance of Russell Sage Foundation's grant. Mr. S. E. Eliot became a member of the staff of the Association, and promotion of national work was left entirely in the hands of the new Association.

Unfortunately, the high hopes of large contributions were not realized. After spending the money given by Russell Sage Foundation, chiefly on salaries and an effective exhibit shown at the Metropolitan Opera House, the Association lapsed into a period of quiescence, and its directors were faced with debts and an empty treasury. The burden of seeing that the debts were paid and of restoring life to the national movement, fell chiefly on Dr. Lewis, Mr. Van Cleve, and Dr. Jacob A. Shawan, Superintendent of Schools of Columbus, Ohio. Their first ray of hope came at a

luncheon in Buffalo with Jerome D. Greene, then Executive Director of the Rockefeller Foundation. He was appealed to for help, on the ground that prevention of blindness was an important division of the public health movement, which was a main interest of the Rockefeller Foundation. Though Mr. Greene was sympathetic, nothing immediately resulted.

Among members of the New York Committee was Raynal C. Bolling, an attorney for the United States Steel Corporation and member of its committee on prevention of injury by accident. He was an able, bright young man, full of vigor, who, unfortunately, lost his life early in the World War as an aviator. Mr. Bolling's interest in the revival of the Association was secured, and in March, 1913, he accepted election as a member of its board. He played an active and effective part in the development of new plans, which made the Association, or rather its successor, under a different name, a live, going concern. The three members of the former Russell Sage Foundation Committee were also added to the board, as well as several able men who were qualified to give advice on technical subjects. Russell Sage Foundation was approached for a grant and agreed to give, in addition to its grant to the New York Committee, \$5,000 for the first year, provided that several conditions should be met—the chief one being that an executive could be engaged who was well qualified by experience and ability to successfully direct the development of the Association.

In an informal meeting, Messrs. Bolling, Van Cleve and I agreed that the Association required an income of \$15,000 and that the Rockefeller Foundation should be asked to match the grant from Russell Sage Foundation. To a formal request, the Rockefeller Foundation responded generously in May, 1914, by making a grant to the Association of \$5,000 a year for five years on condition that each year an additional \$10,000 of income should be contributed from other sources.

In 1913, the New York Committee had, by mutual consent, separated from the New York Association, whose work was confined chiefly to Greater New York, and had become independent. The directors of the National Association, when the promises of funds had been received, invited the New York Committee to become one of its standing committees. This merger was agreed to, the New

York Committee was disbanded, and its chairman and members were appointed as a standing committee of the Association, to continue work in the State of New York.

The directors of the Association also decided to abandon the title, "American Association for the Conservation of Vision," with its implications of a broadened responsibility, and to confine itself to the definite purpose of preventing blindness in accordance with original plans for the movement. With the consent of all concerned, it adopted and was incorporated under the more modest title, "National Committee for the Prevention of Blindness."

The most important problem confronting the new Committee was to find a satisfactory executive. The first choice was Mr. Van Cleve, but he could not afford to leave his posts in Ohio without more assurance than the new Committee was at the moment able to give of a permanent position and a suitable though modest salary. Then a very fortunate coincidence occurred, which took a load off the shoulders of several of us. Mr. Van Cleve was offered the position of principal of the New York Institution for the Education of the Blind. He accepted and, with the consent of the directors of the Institution, agreed to give enough time to the service of the National Committee to guide its work. He was then appointed Managing Director of the Committee, with a comparatively small compensation, with Miss Van Blarcom as Assistant Secretary in charge of work in the State of New York. Mr. Van Cleve continued with the Committee until he began to feel the effects of his hard work in 1923, when he retired. He was succeeded by Lewis H. Carris who, on Mr. Van Cleve's recommendation, had come to the National Committee in 1921 as Field Secretary.

Thus ended the painful anxiety and suspense which had depressed but had not discouraged the men who, with faith, courage, and persistence, had carried the cause through the darker days to its final establishment on a firm foundation.

I have dwelt at length on this early history of the movement because it is a stirring example of what pluck, grit, and determination can accomplish against heavy odds, and may give encouragement to others who face depressing obstacles to progress.

Let us now turn to the other side of the picture, and glance first

at the work of the New York Committee, which has been pursuing the even tenor of its way throughout this struggle with problems of national organization. Main objects of the New York Committee had been: (1) to reduce the number of cases of ophthalmia neonatorum; (2) to improve the practice of midwifery; (3) to stop the sale of wood alcohol under false names and without labels marked "Poison." In all of these phases of its work it achieved noteworthy success. Another outstanding event was publication of a report based on a study, by Miss Van Blarcom, of the English midwife laws.

In 1916, Miss Van Blarcom resigned, and Mrs. Winifred Hathaway, now Associate Director of the National Society, was appointed to succeed her as secretary of both the National and New York Committees. The latter was discontinued in 1930, when there seemed no longer any reason for keeping a special committee for New York.

There is time left to speak only briefly of the current work of the National Society in order to show how its services have increased and widened. In spite of all that has been done, we still find cases of ophthalmia neonatorum. The proportion of pupils in schools and classes for the blind whose blindness is due to this cause has been reduced from about 26 per cent in 1908 to about seven per cent in 1938. This progress, though, should, it seems to me, be greater; clearly there is still urgent need for continuous work in this connection. The Society has co-operated actively in the campaign to control syphilis; it has published and distributed literature on the subject of eye accidents in industry, and advised safety engineers and others as to means of prevention; it has backed the campaign for a safe and sane Fourth of July, chiefly by preparation of material for widespread use by radio and otherwise. It has provided for the training of medical social workers, has conducted institutes on eye health, and has provided instruction in eye health for nurses throughout the country.

In the field of education it has made special efforts to induce the provision by school authorities of sight-saving classes for pupils with defective vision. Summer courses to prepare teachers to conduct such classes have been given in universities and colleges. During 1938, 31 new sight-saving classes were inaugurated, bringing the

total number to 589. These provide normal education for some 8,000 children who because of seriously defective vision cannot hold their own in regular grades.

These items represent but a portion of the widespread activities of the staff, reaching every part of the country through correspondence, publications, slides, films, lectures, radio talks, and other educational channels.

The relations of the Society with medical, social, educational, and other agencies, both public and private, are indicated by a quotation from an address by Mr. Carris, made at the last annual meeting of the Society. Mr. Carris said:

“The National Society co-operates with the medical and social work professions and with hospitals in the development of medical social service in eye hospitals and clinics, through making possible the preparation and, in some instances, placement of trained workers on a demonstration basis; with the National Safety Council in the Society’s program for the elimination of eye injuries and hazards; with the American Social Hygiene Association in the campaign to prevent visual losses from syphilis and gonorrhea; with state health departments through the Society’s representation on the Committee on Conservation of Vision of the Conference of State and Provincial Health Authorities of North America, and active leadership in the program of that committee; with the federal government and other national agencies through participation in an inter-organization committee concerned with the promotion of eye health under provisions of the Social Security Act; with leaders in the nursing field in the development of a comprehensive eye health program for nurses; with other professional groups and agencies in stressing the many and varied aspects of the Society’s preventive and sight conservation efforts. . . .”

A noteworthy sign of the Society’s success in winning the confidence and sympathy of the public is shown in its financial condition compared with that of 1908. We were glad to begin with \$5,000 and found this sum sufficient to support effective work in the State of New York. In 1938, the Society received income from contributors of over \$95,000, and from other sources of over \$31,000. Yet the total of \$126,500 was not enough by nearly \$40,000 to cover the cost of important and timely work. And it could well have

spent more for work that is much needed. (Beside the increase in its income, the Society has accumulated through legacies and a few large gifts an endowment of over \$400,000.)

We started with one person; the leading members of the staff now number fourteen, and all together, in the offices in Radio City, there are, including the staff, thirty-eight people. I can fairly say this is a splendid monument to Lewis, Schuyler, and Van Cleve, and can do no better in closing than to read a prophetic statement made by Mr. Van Cleve in the first annual report of the National Committee.

In November, 1915, Mr. Van Cleve said:

“Notable as has been the success of this movement thus far, we see before us years of unwearied effort in the hope that needless blindness may be reduced. It is ours to teach by voice and pen and picture that there may no longer be ignorance on the part of any to excuse the unnecessary loss of the power to see. It would be fatuous in us to suppose that the old law of the angel and the beast warring in the members, of which St. Paul discoursed, will be wholly abrogated by our instruction. To know is not always to do. But we shall continue to ‘cry aloud, spare not, lift up the voice like a trumpet’ until our message has been heard in every city and village and hamlet. To co-operation in such an inspiring service we invite all lovers and all servants of humanity.”

Prevention of Blindness—A Program*

Dr. P. Bailliant

IT is especially auspicious to present this article by the president of the International Association for Prevention of Blindness, whose program we hope may be kept alive through these troublous times.

THE war is again making people blind. The results obtained in this field of the prevention of blindness, thanks to the finest discoveries, thanks to the repeated efforts of ophthalmologists, appear fruitless; in some parts of the world, primitive and deadly instincts will destroy in a few weeks more than whole lives dedicated to work could build up. Is this a reason, even among those who suffer, to turn away from our task and to give up the struggle? We do not think so; and if in some countries which are directly stricken the realization of the measures suggested is unavoidably delayed, they will be resumed again some day; in fact, although anxiety pervades the civilized world, many countries to-day, as they did yesterday, continue to wage the campaign against blindness.

This journal, as long as we are given the means to keep it going, will know no interruption. After ten years of existence, the International Association for Prevention of Blindness considers that its work and influence are more necessary than ever; from all quarters we are urged to carry on our task; an International Exhibition, decided at the time of the last General Assembly in London, was soon to display the results obtained and the objects to be attained. The war will postpone the date of opening, but, if we know how to use this delay, the ultimate result may be better than we had anticipated; in our present distress we should look for motives for going forward and making new progress.

* Reprinted, by permission, from the *Journal d'Ophthalmologie Sociale*, Vol. III, No. 1, January, 1940.

One knows too well that modern warfare is one of the most dangerous causes of blindness. We need not insist further on the subject; ophthalmologists will endeavor to reduce by all possible means the number of the war blind.

The Ways and Means of a Campaign Against Blindness

The following pages are chiefly intended to outline a program of action. This program has been, in part, suggested by our correspondents. Often we have been made to realize the importance of our central office, which collects new acquisitions, fruitful ideas, requests which must be taken into account.

This brief summary, in which ophthalmologists (among other readers of our *Journal*) will recognize facts and ideas with which they are familiar, will be a kind of preliminary draft of the proposed international exhibition. Those of our members who, throughout the world, may be willing to send us their ideas, their statistics, their iconographic documents, will find here, so to speak, the divisions which we are asking them to help us to fill; in the sections which we are suggesting, they will supply through their endeavors the missing links. These individual and collective efforts will build up the sum of our knowledge and means of action so that public opinion—those who know a great deal and those who know little—may better appreciate what should be done and what should be avoided. This is the path which we should follow: to enlighten public opinion, whatever its degree of education. In endeavoring to overcome certain prejudices, in conveying elementary notions to the patients who are beyond our reach, lies our most fruitful line of action.

How often in civilized countries do we meet cases of blindness which a knowledge of elementary precautions might have saved!

(A) **The Action of the Ophthalmologists.**—It is obvious that in a campaign against blindness ophthalmologists should remain in the forefront; their daily action, the invaluable discoveries which some of them have made in the field of ophthalmological science, very efficiently contribute to reduce the number of the blind. Our Association should follow up, admire and promote their work, although, in fact, the scientific orientation of the prevention of blindness is

rather the concern of local, national and international scientific societies and, first of all, of the International Council of Ophthalmology and its Congresses, which we hope will be resumed some day. The International Council realizes so well the necessity for this collaboration that it was decided that the chairman of our Association, as well as the chairman of the International League against Trachoma, would be, *de facto*, members of the Council. There, the rôle of the president of this Association mainly consists in leading towards practical issues the discussions of our colleagues, for instance, in the choice of reports. The attribution of the valued prizes awarded by the Association enables us to help those whose researches have a practical end in view, as is mostly the case with our work even when it assumes a purely speculative appearance.

It is to the ophthalmologist that we turn when we wish to find out the effects, on the visual organ, of certain social diseases, such as tuberculosis and syphilis, as well as the best methods of dealing with them.

It is again to ophthalmologists that we address our requests when, in a meeting such as our General Assembly in London in 1939, we endeavor to study the practical application in the various countries of a prophylactic measure like the Credé process. In comparing the results obtained here and there, in showing what has been achieved in other countries, these inquiries are of great value. We shall endeavor to organize other comprehensive consultations of this kind.

On the occasion of the next meeting of the International Council of Ophthalmology, the Association decided, at the request of Dr. Park Lewis, to devote its session to a study of the practical and social aspects of glaucoma; the problems of race, heredity, world distribution, treatment, etiology and pathogenesis will be dealt with by our reporters. But, while it has been the custom for the meetings of this Association to be held in connection with those of the International Ophthalmological Council, these meetings may be summoned where and when it suits the Association. This glaucoma session will take place as soon as circumstances permit. It will be remembered that on the occasion of this meeting, or during the next Ophthalmological Congress, the Association will award an honorarium of \$1,000 (kindly placed at our disposal through Dr.

Park Lewis), offered by American benefactors for the best original contribution on glaucoma.

It will be seen that besides its social action, this organization remains in close touch with the progress of ophthalmological science.

(B) **The Action of General Practitioners.**—While even in countries where there are many ophthalmologists it is often the general practitioner who is first consulted by the patient with a diseased eye or failing eyesight, there are still countries, areas and agglomerations where, owing to the absence of specialists, the patients have to apply to a general practitioner. In most cases, owing to the common sense of these physicians, catastrophes are avoided, yet they should have a minimum acquaintance with ophthalmological facts, with our recent discoveries; they should know, for instance, that to-day detachment of the retina is curable; that glaucoma is a treacherous and insidious disease; that some brain tumors which may be benign first slowly affect the eye and may be curable; that an examination of the fundus is, in many cases, the best guide to medical diagnosis. They should know that certain eyedrops, certain lotions which a clever publicity showers on them, are undoubtedly harmless, but that much precious time is lost when they are used in certain eye diseases. What better example could we mention than glaucoma? A woman is taken ill with fearful headache and sickness; her relatives are anxious and call in a doctor; the patient complains of the maximum pain in the eye which can no longer see. The symptoms of acute glaucoma are present: the eye is red, sightless, hard, the pupil dilated. If the doctor is not as familiar with the question of acute glaucoma as he is with appendicitis, in face of such headache, sickness, general discomfort, he thinks of a "cerebral congestion," of an abnormal onset of some pulmonary or other infection; he attends to the general condition and if the patient speaks of his visual trouble he replies that this will be seen to later, when the general health is better. Later is often too late. I believe that there is not an ophthalmologist who has not been called in, at a late hour, to witness some deplorable case of this kind.

Therefore the prevention of blindness demands that the general practitioner's elementary notions on ophthalmology should not be

too elementary, that he should know enough to be on his guard—to recognize acute glaucoma; to keep in mind its chronic forms; to know that in an old man, a slow and progressive loss of sight, even when painless, is not always due to a cataract which will be operated only when the sight is almost nil; to recognize the difference between irido-choroiditis and conjunctivitis; to be aware that a wound of the eye, open, apparently slight, may lead not only to the loss of the wounded, but of the opposite, eye. This is what the physicians should be taught. In all the universities medical undergraduates are following courses of ophthalmology whose conclusion is a more or less strict examination. Rather than methods of observation, which they will never use, they should be taught the elementary and practical theories to which we have just referred—the close relationship between ophthalmology and general medicine; the services which the former can render to the latter. Instead of avoiding lectures on ophthalmology they will, on the contrary, be anxious to attend them if they believe that they can thereby increase the practical knowledge which they will need.

A comprehensive inquiry should be undertaken in the various countries to find out the regions where elementary ophthalmological care is lacking; for there are areas where, for thousands of square kilometers, there are no specialists, no hospital accommodation, and those are often the very regions where eye diseases are most widespread and severe. The Association might promote the creation in these areas of mobile ophthalmological units such as those described by our Indian colleague, Dr. S. K. Mukherjee.

(C) The Action of Public Opinion and of the Public Authorities.—This is certainly the most difficult, the most delicate, and also the most useful, aspect of our work.

Since the early years of this century a great movement has been set up among national and international welfare societies, among governments, charitable organizations and among individuals on behalf of the campaign against certain scourges, such as tuberculosis, cancer, venereal disease. It was natural that diseases at once so widespread and so dangerous for the future generations, against which collective action is so effective, should first have claimed the attention of the public. The contagious nature of some of these scourges, the increasing frequency of others, the dread which they

inspire, were bound to attract the notice of those whose duty it is to protect and rule the public health. Leagues, dispensaries, sanatoria, hospitals, laboratories were created throughout the world. These successful achievements were greeted with enthusiasm.

The campaign against blindness has not so far attracted much attention on the part of the public authorities or of charitable societies. It was thought that this was more a matter of medicine and individual precautions than a proper object for a collective effort. In face of the army of the tuberculous, the cancerous, the syphilitics, the number of the candidates for blindness seemed negligible. On the other hand, there appeared to be no risk of contagion, no epidemics which might alarm a whole population. All say that they value vision above all other things, more than their fortune, their health, their limbs, but they are not prepared to go a long way to preserve their neighbor's eyesight. To meet a blind man fills us with pity, but the number of the blind and of the would-be blind is so small that our pity remains, in some way, a personal affair. For all these reasons the public health authorities are inclined to give blindness only the second place in their unceasing preoccupations, and this is no subject for wonder. Yet the field open to their activities is, in this sphere, unlimited, and the good seed they might sow would yield a hundredfold harvest. While the blind cannot be counted by thousands like the tuberculous, persons with diseases or wounds of the eye, in some countries, can well stand comparison with the victims of other scourges. If we take two extremes—for instance, France and Egypt—the ratio between the rate of the blind is 1 to 10, but the ratio between diseases of the eye is approximately 1 to 100. When the evil is so deeply rooted, ophthalmology can and should give directions; left to itself it is of no avail. The authorities and public opinion should be brought into play. To solicit and promote this all-powerful intervention comes within the duties of an international organization. It is in a certain measure a graceless and obscure mission, as one is seldom thankful to those who give advice and once the good work is started they get no credit for it. But it is a necessary task with unlimited possibilities which, in the end, brings forth its own reward.

Among the most efficient measures which directly or indirectly

cut off the sources of blindness we shall mention the action of the Egyptian Government which finances the upkeep of all the ophthalmological clinics; the wise immigration laws adopted by Canada to prevent cases of trachoma from entering the country; the institution of the "sanitary card" for Algerian emigrants; the laws against the transmission of hereditary diseases in Germany, in some American and Scandinavian states; finally, in the majority of civilized countries, the laws against venereal disease, against industrial injuries, those on behalf of Jennerian vaccination or of the application of the Credé process.

The prevention of eye diseases is so closely associated with the health and welfare of the people that any general measure which improves these conditions exerts a preventive effect. In this regard, the initiative of the League of Nations in summoning, in 1937, an Inter-Governmental Conference of Far Eastern Countries on rural hygiene deserves special mention; its full significance will be appreciated when it is remembered that a large number of blind in India and China owe the loss of their sight to lack of vitamins.

This brief summary will give some idea of the excellent work already done by the public authorities; of the task which still awaits them. In the present anxious circumstances, these problems may appear of secondary importance. Yet, they are the very essence of this civilization on behalf of which so many sacrifices are readily accepted. Their lasting interest should outlive the tragic but transient realities of the moment.

It would be ungrateful on our part not to acknowledge the liberality of certain governments: we receive a very substantial subsidy from the French Ministry of Health, from other governments such as Belgium, and also from such powerful organizations as the National Societies of America (their generosity is beyond praise), of Great Britain, etc.

It would be easy to show to the governmental authorities that measures against blindness are less costly than the grant of an annual pension to the blind.

Finally, we should try to enlist the interest of the public. The history of family eye diseases, the part played by heredity and contagion, the risks involved in uncorrected or badly corrected errors of refraction—this is what should be taught, to begin with, by

means of pamphlets, of simple and vivid images. To know danger is the best way to avoid it.

Industrial injuries play an outstanding part as a cause of blindness. We intend to devote a special number to this subject; it has been dealt with already at one of our meetings, in Paris, in 1930;* the protective devices used in the various countries were emphasized. There again very simple images and graphs (in 1928, among 2,052,898 labor accidents notified to the "mairies," 700,000 were eye injuries) might be displayed to attract the attention of employers, of working men and their families to the risks and to the necessary preventive measures.

In the number of the *Journal of Social Ophthalmology* dedicated to sight-saving classes, our collaborators showed what services these classes could render with a corresponding economy for the state. The public must further be told the importance of the quality of natural and artificial lighting for the vision of the child and adult, the danger of giving children badly printed texts on cheap paper such as those which are too often used in a number of illustrated periodicals intended for young readers.

The rôle of the opticians and the free sale of correcting glasses have already been dealt with at the Congress of Madrid. Should any one, with no diploma or with a diploma too easily obtained, be entitled to select and sell a correcting glass? Should the sale of glasses, even for presbyopics, be forbidden except on presentation of a doctor's prescription, as in some countries? Should one allow, as in other countries, the development of the ill-defined class of "refractionists"? Should the presence in the optician's back room of a so-called "oculist," who is supposed to advise the patient and who most often refers him to the salesman he has met on his way, be tolerated? All these questions deserve our close attention.

Finally, the capital part played by the social worker must not be overlooked. This was the chief subject of our reports in Cairo. The countries and organizations who have adopted these valuable auxiliaries could no longer part with them.

In tropical countries, in other countries which are not distant and which are also affected with trachoma, the campaign against this scourge must be added to other duties. This task chiefly

* Imbert Léon: *Accidents du travail*. Paris: Masson et Cie, 1939.

devolves upon the International Organization whose chairman is our learned colleague, Dr. MacCallan. The eloquent figures in his remarkable and encouraging report at our meeting in Cairo show what results can be achieved through a successful national campaign.

We hope our readers will realize that this is merely an outline of the list of subjects which deserve our attention. However far-off the results, however many and varied the obstacles in our path, we should persevere in our campaign against blindness. The International Association hopes that the National Committees, some of whom are very powerful, will help us in preparing this International Exhibition which should yield excellent results.

Study of Prevention of Blindness from Ophthalmia Neonatorum*

THIS report was prepared in co-operation with the National Society for the Prevention of Blindness through its consultative relationship with the Committee on Conservation of Vision of the State and Provincial Health Authorities of North America. It supplements the material published in 1939, in publication 301, under the same title.

Sources of Information

It will be recalled that at the Conference of 1939 it was decided that the Committee on Conservation of Vision should repeat the study of ophthalmia neonatorum case records in order to obtain information which might be of assistance to health officers in strengthening their programs for the prevention of blindness due to ophthalmia neonatorum. Accordingly, the Chairman of that Committee requested that an individual record be supplied for each case reported to health officers during the year 1939. The record form used was for all practical purposes the same as that used in the previous study. (See Appendix B.)

Returns from the various health areas proved to be somewhat greater than those of the previous study, but still far from complete, as will be seen from the following brief tabulation:†

	<i>Total cases re- ported to health officer in 1939</i>	<i>Number of case records supplied</i>
Total	3,008	1,102
United States		
States	2,940	1,069
Territories	20	20
Canadian provinces	44	9
Newfoundland	4	4

Records are available for 37 per cent of total cases.

* Reported at the 55th Annual Conference of the State and Provincial Health Authorities of North America, Washington, D. C., May 7-12, 1940.

† For detail by states see Table 1, Appendix A.

Other factors which materially affect the value of the study should be mentioned at the outset. They are:

1. The incompleteness of the information on individual case records; "not reported" ran as high as 100 per cent on certain items in the record for some health areas;
2. The fact that 59 per cent of the total records came from the State of Ohio; and
3. The known and suspected incompleteness in the reporting of cases to health authorities. The latter point warrants special attention.

Incomplete Reporting of Ophthalmia Neonatorum Cases

Reporting of cases is rather generally required by law or health department regulations. Therefore, it is not surprising that information as to the number of cases of ophthalmia neonatorum reported to the health officers in 1939 was supplied by all but three health areas. (See Table 1, Appendix A.) Replies received indicated that no cases occurred during the year in Idaho, New Orleans, Maine, Nevada, North Dakota, Oregon, Vermont, Washington, and Wyoming; in the territories of Alaska and Virgin Islands; in the provinces of Alberta, Ontario, Prince Edward Island, and Saskatchewan. This would mean that not a single case occurred among 208,185 births. It should give cause for rejoicing and members of the Committee on Conservation of Vision would wish to be among the first to offer congratulations to the health officers of those areas. If they do so only with mental reservations, it is frankly because this record seems too good to be true and possibly is not true, as some of the replies have intimated.

No attempt has been made by the Committee to test the completeness of the case reporting during 1939 in any area. However, as proof that one may be misled into a false feeling of confidence, we quote from the findings of a recent check-up in New York City. This study, which was conducted by a student in ophthalmology and had the approval of the departments of health and hospitals, covered the six-year period from 1931-1936 and was confined to a limited group of hospitals accounting for only 31 per cent of the total births in the city. The most significant findings are:

1. That, although only 23 cases had previously been reported to the Department of Health for the entire city, the investigation turned up 1,344 cases among 192,478 births (or a rate of about 7 per 1,000 live births)
2. That, among these were 141 gonorrheal cases (or a rate of .73 per 1,000 live births)
3. That eleven of the gonorrheal cases, as well as three cases of chemical origin, ended in some degree of impaired vision.

This study further disclosed inadequate recording of cases in some of the hospital record files, and this inadequacy affected the completeness in the special study. For example, it was noted that the group of hospitals able to supply data on types of ophthalmia neonatorum other than gonorrheal also showed a higher gonorrheal case rate (1.05 per 1,000 live births). (For further information see Table B in Appendix.)

Additional evidence that cases of ophthalmia neonatorum can be found if attention is focussed on this subject is shown in the figures for the District of Columbia which had recorded only 9 cases reported in 1937, had 26 cases reported in 1939 and still specified the latter figure to be incomplete. Also, in New Jersey the number of cases reported yearly has risen gradually from 23 in 1935 to 168 in 1939.

If the frequency rates of the special study mentioned above are compared with those shown in our own study as given in Table 1, Appendix A, it will be noted that in most health areas the rate falls far below the revised rate for New York City for the years 1931-36. Outstanding exceptions are: Baltimore, Boston, and the remainder of Massachusetts where the rates seem excessively high (36.90, 25.60 and 11.85, respectively). The total cases reported give a rate of 1.32 per 1,000 live births for continental United States, 0.27 for the Territories and 0.20 for Canada. However, a glance at the details of the tabulations shows that few areas report more than their gonorrheal cases and even the gonorrheal figures are incomplete, as some of these cases are undoubtedly lost among those for which the cause is "not reported." The extent to which poor reporting invalidates the total figure in any area is unknown to the

members of the Committee and probably to the executive health officers of some areas.

On the whole it would appear that the procedure for reporting of cases may be falling into disuse, now that physicians, midwives, and the general public are presumably educated to the importance of using prophylactics and securing prompt medical treatment. The result is that health authorities are no longer aware of the extent of the problem.

Blindness from Ophthalmia Neonatorum

The subject of suspected incompleteness of the figures cannot be left without calling attention once more to the fact that the most recent figures on causes of blindness among new pupils entering schools for the blind indicate that as late as six to seven years ago 65 to 70 new cases of blindness due to ophthalmia neonatorum were being added to the rolls of the blind yearly in the United States. In this connection it is important to note that at that time the total number of cases reported to health officers was approximately the same as the total reported during 1939.

The percentage of new pupils whose blindness was due to this cause was 6.7 per cent* in 1938-39, as compared with rates varying from 6.5 per cent to 9.1 per cent in the previous five years, and 28.2 per cent as of 1906-07 when public health authorities first undertook an ophthalmia neonatorum control program.

Impaired Vision from Ophthalmia Neonatorum

The present study of ophthalmia neonatorum case records reveals 20 cases in which there was some evidence of a permanent defect in one or both eyes. Of course, the figure 20 is probably not the true total of cases of impaired vision, since information on this point is missing for 2,002 of the total 3,008 cases reported and the figure should be further adjusted to allow for poor reporting of cases. Based on the number of cases for which information regarding eye condition at completion of treatment was reported, we arrive at an apparent visual impairment rate of approximately

* This figure is tentative, as reports are not yet available for all schools.

2 per cent of the cases occurring. Thus the actual number of cases of impaired vision may prove to be at least 60.

One section on the record form called for a statement concerning the degree of impairment of vision. As may be seen from the following table, only a few cases were designated as blind in one or both eyes. However, our experience leads us to believe that an impairment that is sufficient to warrant education in a braille class would not ordinarily be designated as blind, since the average observer thinks of blindness as equivalent only to absolute blindness.

	<i>Number of cases*</i>
Both eyes affected	
Blind	2
Vision impaired	9
Blind in one eye, vision impaired in other eye . . .	1
One eye affected	
Blind	1
Vision impaired	7
Total	<div>20</div>

Use of Prophylactics at Birth

Since great reliance is placed upon the use of a prophylactic at birth it is of interest to note the distribution of cases by type of prophylactic used. (See Table 2, Appendix A, for details.) No prophylactic was used in 46 (4 per cent) of the cases and no information was available in 109 (10 per cent) more. On the other hand, in 79 per cent silver nitrate (usually 1 per cent strength) had been used, and in 7 per cent some other drug had been substituted. Once again we are forced to conclude that a single application of the prophylactic drug is not the only item to be stressed in the ophthalmia neonatorum prevention program.

Attendant at Birth

It was of interest to determine the rate of occurrence of ophthalmia neonatorum cases among births attended by physicians, midwives and others, at least for continental United States for which basic information on distribution of total live births by type of

* These cases have been identified by health area in most of the appendix tables. See figures in parenthesis.

attendant is available. Because rates computed from the small sample of cases included in this study would obviously be an understatement, the two sets of percentages are presented separately for comparison.

<i>Type of attendance at birth</i>	<i>Per cent of total live births in the U. S.</i>	<i>Per cent of total ophthalmia neo- natorum cases studied (U. S.)</i>
Physician in hospital	48.0	32.9
Physician in home	41.8	56.4
Midwife	9.5	6.0
Other	0.6	4.7
Total	100.0	100.0

From the fact that both hospitals and midwives account for a smaller percentage of the ophthalmia neonatorum cases than would be expected from the distribution of total live births, it is presumed that the physician in the hospital and the midwife are more successful than is the physician in the home, in preventing ophthalmia neonatorum. As might be expected, the infants who fare worst are those attended by relatives and other unqualified persons, but fortunately this group is quite small.

Factors Affecting General Health at Birth

Ophthalmologists frequently mention the effect on both the incidence of ophthalmia neonatorum and the outcome of its treatment of complicating factors, such as gonorrhea in the mother, prematurity, malnutrition and multiple births. An attempt was made in this study to gather data on these points. As will be noted in Table 4, Appendix A, such information proved to be rather generally unavailable. Hence there is nothing definite to report except perhaps the fact that impaired vision appears to occur somewhat more often among the malnourished group (3 out of 31 cases).

Delay in Reporting Cases

In addition to incompleteness in the reporting of cases occurring, the health officer is confronted with the problem of delayed reporting. By computing the interval that had elapsed between the date on which symptoms were first noted and the date the case was reported to the health officer for each case in which the dates were

given, we found that only 26 per cent were reported immediately, i. e., on the date of occurrence; by the end of the second day, 58 per cent had been reported. Altogether 79 per cent had been reported under one week, while 11 per cent were not reported until the second week, 4 per cent in the third week, 2 per cent in the fourth week and 4 per cent were reported only after four weeks had elapsed. (See Table 5, Appendix A, for details.) Since the dates reported were not given for a large number of the cases ending in impaired vision it is impossible to state positively the effect of the delay in reporting cases to the health officer.

Delay in Bringing Case Under Care

Apparently much less delay occurs in bringing the baby under care than in reporting to the health officer. Table 6, Appendix A, shows that 43 per cent had been brought under care before the end of the day on which symptoms were noted, 72 per cent at the end of two days, and 85 per cent within a week.

It would be gratifying to be able to report that only the cases in which medical care was delayed were responsible for unfavorable outcome after treatment. Unfortunately, this does not appear to be entirely true, as the cases receiving prompt care on the day of occurrence accounted also for 9 of the 20 cases of impaired vision.

Interval Between Date of Birth and Date Symptoms Noted

Figures on the time that elapsed between the date of birth and the date on which symptoms were first noted are probably influenced by the fact that in most health areas the law or regulation on reporting includes in the definition of an ophthalmia neonatorum case, a time limit of two weeks. Also, the few cases received which showed infections occurring two or more months after birth, were deliberately excluded in order to confine the counts to a comparable group. However, approximately 8 per cent of the gonorrheal cases and 3 per cent of the others were not noted until after two weeks of age or more. (See Table 7, Appendix A, for further details.) It appears that this may indicate the necessity for increasing the age limit. Apparently this is the judgment also of the Department of Health in the State of New York, since that state's regulation has

recently been revised to include cases occurring within 21 days of birth.

Laboratory Diagnosis

It is gratifying to find in the records evidence of appreciation of the importance of obtaining laboratory diagnosis as a basis for treatment. Only 12 per cent of the 1,102 cases failed to have this service.

Medical and Nursing Care

The advantages of hospitalization and of having the medical care directed by an ophthalmologist are well known. In the group of cases studied 14 per cent had both of these advantages, while an additional 24 per cent were hospitalized and an additional 2 per cent had care in the home under the direction of an ophthalmologist. It is quite possible that specialist service, being concentrated in the larger cities, is not accessible for the average case. Of the remaining cases cared for in the home, 366, or 33 per cent of the total, were under the care of a general physician and 224, or 20 per cent, had special nursing care presumably under the supervision of the health officer. Type of care was not reported for 7 per cent of the cases. (See Table 8, Appendix A, for further details.)

It seems only fair to note also the advantages of good nursing care. Among the 266 cases specified only as having had special nursing care, not a single case of impaired vision occurred.

Duration of Medical Care

As will be seen in the table on duration of medical care (Table 9, Appendix A), there is a wide variation in the length of treatment for individual cases. While some were apparently cleared up within a few days, others required medical supervision for a period of months. Why this should be so, it is impossible to state. However, the bulk of the cases required medical care for a period of one to three weeks, the median being 14 days for the gonorrheal cases and 15 days for the non-gonorrheal.

Drugs Used in Treatment

Recent reports in medical literature have pointed to the success achieved with the use of sulfanilamide in treatment of ophthalmia neonatorum, particularly cases due to gonorrheal infection. For this reason an attempt was made to analyze cases by type of drug used. Unfortunately this information was missing from two-thirds of the records, and only indefinitely specified in many others. However, the figures show that sulfanilamide or its derivatives was used in 177 cases, and that the average period of treatment was 13 days for the cases in which its use was mentioned, as compared with 16 days for all other cases. Unfortunately, the records do not prove the superiority of this treatment over other types, since six cases resulted in impaired vision.

Recommendations

The attempt to make a detailed analysis of all cases of ophthalmia neonatorum occurring in 1939 fell short of the expectations of the Committee on Conservation of Vision, because information requested proved to be not generally available to health officers. Of the 3,008 cases which had been reported to health authorities during the year, only 1,102 case records were available for study, and not all of these gave complete information on all points.

Official records would appear to indicate a very low incidence of cases of ophthalmia neonatorum. The average for all health areas was 1.19 per 1,000 live births, and the rate for a considerable number of areas was either zero or practically negligible. However, the Committee believes it has evidence that reporting of cases may be quite incomplete. The Committee on Conservation of Vision recommends that during the next few years each state and provincial health authority work within his own area to *make certain that reporting of cases is complete*.

Again, the official records turned up only 20 cases of infants with impaired vision due to ophthalmia neonatorum, but, since records on this point were available for not more than one-third of the cases reported, it seems likely that the true total among cases reported is at least 60, and presumably even this figure is underestimated because of poor reporting. On this point the Committee

recommends that health authorities make it a routine practice to *request an adequate case record on each reported case*, this record to include among essential facts a statement of the final outcome of the case in terms of degree of impaired vision.

The case records apparently indicated only a few cases of blindness (2 blind in both eyes and 1 in one eye). However, some of the infants reported as having impaired vision may prove to be candidates for a school for the blind when they are old enough to have a satisfactory vision test.

Although it is impossible, because of incompleteness of the records, to state definitely whether or not delay in reporting of cases to the health officer is a factor which has influenced the ultimate outcome of the cases having unfavorable results, there is evidence of considerable delay in reporting of cases. This might be investigated in connection with attempts to improve completeness of the reporting.

Many cases of severe ophthalmia similar in all respects to those occurring within the usual two-week limit were sent to the Committee for study. It would appear, therefore, that there is reason to increase the time limit, possibly to include all cases occurring within the first year of life.

Once again the Committee would urge that health officers assume responsibility for seeing that infants with impaired vision are placed under ophthalmological care for further corrective treatment, when this is possible, and that those with a visual defect sufficient to warrant training as handicapped children are referred for such training.

Finally the Committee on Conservation of Vision suggests that further study of ophthalmia neonatorum case records by the Committee be postponed for a period of three to five years during which time health authorities in each health area should endeavor to improve case reporting.

Appendix A

Table 1.—Reporting of Ophthalmia Neonatorum Cases—1939

OPHTHALMIA NEONATORUM CASES REPORTED

Health area	Live births	Total reported	Rate per 1,000 live births	Type of case				Case records received for study
				G.C.	Other organisms	Chemical irritation	Not re-reported	
States								
Alabama.....	62,032	12	.19	8*	..	..	4	12
Arizona.....	10,878	24	2.21	7*	..	..	17	8
Arkansas.....	37,182	9	.24	4	1	..	4	7
California....	101,844	16	.16	14*	..	..	2	15
Colorado.....	20,599	5	.24	4*	..	..	1	4
Connecticut..	23,783	2	.08	2	0	0	0	2
Delaware.....	4,431	4	.91	1*	..	..	3	4
Dist. of Col...	12,938	26	2.01	12*	8	..	6	26
Florida.....	31,096	3	.10	2	..	..	1	3
Georgia.....	64,636	2	.03	..	..	..	2	0
Idaho.....	11,277	0	.00	0	0	0	0	0
Illinois (except Chicago)	70,902	10	.14	4	..	..	6	7
Chicago....	51,660	24	.46	24*	0	0	0	24
Indiana.....	60,192	9	.15	7*	..	..	2	9
Iowa.....	43,221	4	.09	4	0	0	0	4
Kansas.....	29,574	2	.07	..	..	..	2	0
Kentucky (ex. Louisville)	55,746	..	..	..	..	..	..	..
Louisville..	6,132	41	6.70	41	0	0	0	41
Louisiana (ex. New Orleans)	38,583	2	.05	2	0	0	0	2
New Orleans.	10,284	0	.00	0	0	0	0	0
Maine.....	15,218	0	.00	0	0	0	0	0
Maryland (ex. Baltimore)	13,714	8	.57	3	..	..	5	6
Baltimore..	15,299	564	36.90	22	(542)†	..	0	0
Mass. (except Boston)..	45,350	536	11.85	5	(531)†	..	0	5
Boston	15,912	406	25.60	..	..	..	406	0
Michigan.....	96,963	8	.08	7	..	..	1	8
Minnesota..	50,062	5	.10	4	..	..	1	5
Mississippi...	53,694	54	1.00	48	..	..	6	54
Missouri.....	58,567	1	.02	1	0	0	0	1
Montana.....	10,673	4	.38	4	0	0	0	4
Nebraska.....	22,401	1	.04	..	..	..	1	0
Nevada.....	1,888	0	.00	0	0	0	0	0
New Hamp...	7,830	1	.13	..	..	..	1	0
New Jersey...	56,043	168	3.00	..	..	..	168	0
New Mexico..	14,290	6	.42	..	..	..	6	0
New York (ex. N.Y. City)	87,640	76	.87	21*	22	7	26	76
N. Y. City.	101,919	33	.32	27	1	..	5	33
No. Carolina.	79,934	19	.24	..	..	..	19	0
North Dakota	13,041	0	.00	0	0	0	0	0
Ohio (1938)...	112,667	674	5.96	24	(626)†	..	0	650

* Includes indefinitely diagnosed cases, which are probably gonorrheal.

† Includes other organisms and chemical irritations.

Table 1.—Reporting of Ophthalmia Neonatorum Cases—1939—Continued
OPHTHALMIA NEONATORUM CASES REPORTED

Health area	Live births	Total reported	Rate per 1,000 live births	Type of case				Case records received for study
				G.C.	Other organisms	Chem- ical irri- tation	Not re- ported	
States								
Oklahoma....	44,188	7	.16	..	..	..	7	0
Oregon.....	16,245	0	.00	0	0	0	0	0
Pennsylvania..	165,984	38	.23	..	..	..	38	0
Rhode Island..	10,536	4	.38	2	..	..	2	4
South Carolina	41,120	53	1.29	..	..	..	53	0
South Dakota..	11,826	1	.08	..	..	..	1	0
Tennessee....	53,651	34	.63	29	..	..	5	34
Texas.....	121,156	28	.23	4	1	..	23	5
Utah.....	13,214	1	.08	1	0	0	0	1
Vermont.....	6,301	0	.00	0	0	0	0	0
Virginia.....	53,495	5	.09	4*	..	..	1	5
Washington...	26,767	0	.00	0	0	0	0	0
West Virginia..	42,434	8	.19	8*	0	0	0	8
Wisconsin....	55,004	2	.04	2	0	0	0	2
Wyoming....	4,496	0	.00	0	0	0	0	0
Sub-total...	2,231,216‡	2,940	1.32	352	33 (1699)†	7	825	1,069
Territories								
Alaska.....	..	0	.00	0	0	0	0	0
Canal Zone ..	490	1	2.04	1	0	0	0	1
Hawaii	9,062	1	.11	1	0	0	0	1
Philippines...	513,760	..	..	..	..	..	..	..
Puerto Rico..	64,163	18	.28	16*	1	..	1	18
Virgin Islands.	703	0	.00	0	0	0	0	0
Sub-total ..	74,418‡	20	.27	18	1	..	1	20
Provinces								
Alberta.....	15,881	0	.00	0	0	0	0	0
Brit. Col.	12,438	3	.24	1	..	..	2	3
Manitoba....	13,478	1	.07	1	0	0	0	1
New Bruns...	11,418	..	..	..	..	..	..	..
Nova Scotia..	12,189	5	.41	4	..	..	1	5
Ontario.....	65,501	0	.00	0	0	0	0	0
Pr. Ed. Is.	1,971	0	.00	0	0	0	0	0
Quebec.....	78,145	35	.45	..	..	..	35	0
Saskatchewan.	18,162	0	.00	0	0	0	0	0
Sub-total...	217,765‡	44	.20	6	..	..	38	9
Newfound....	§	4	§	..	..	..	4	4
Sub-total...	§	4	§	..	..	..	4	4
Total.....	2,523,399‡	3,008	1.19	376	34 (1699)†	7	868	1,102

* Includes indefinitely diagnosed cases, which are probably gonorrheal.

† Includes other organisms and chemical irritations.

‡ Excludes health areas not reporting.

§ Live births not available.

Table 2.—Analysis of Ophthalmia Neonatorum Cases by Type of Prophylaxis Used at Birth

Health area	Prophylactic used					Total case records, 1939	
	AgNO ₃		Other		None		Not re- ported
	1%	Other	No.	Type specified			
States							
Alabama.....	3	1 (2%) (1)	3	Neo silvol 10, 4%	4 (1)	1	12 (2)
Arizona.....	1	1 (2%)	1	Argyrol 5% (daily)	4	1	8
Arkansas.....	4	0	0		2	1	7
California....	4 (1)	3 (2, ?%)	1	Argyrol ?%	0	7 (1)	15 (2)
Colorado.....	1 (1)	1 (2%) (1)	0		1	1 (1)	4 (3)
Connecticut...	1	0	1	Argyrol 10%	0	0	2
Delaware.....	4	0	0		0	0	4
Dist. of Col...	3	10 (?%)	0		0	13 (1)	26 (1)
Florida.....	2	0	0		0	1	3
Illinois.....	26	3 (?%) (2)	0		0	2	31 (2)
Indiana.....	6	0	1	Argyrol 10%	0	2	9
Iowa.....	0	2 (?%)	0		0	2	4
Kentucky*...	0	2 (?%)	0		0	39	41
Louisiana.....	1	0	0		1	0	2
Maryland....	3	0	0		2	1	6
Massachusetts	5	0	0		0	0	5
Michigan.....	1	5 (1½, ?%)	0		1 (1)	1	8 (1)
Minnesota....	1	2 (?%)	0		0	2	5
Mississippi...	38 (1)	4 (2, ?%)	0		5	7	54 (1)
Missouri.....	0	0	0		1	0	1
Montana.....	1	1 (2%) (1)	0		1	1	4 (1)
N. Y. S. (ex. N. Y. C....	46	21 (2, ?%)	9	Argyrol 25, 20%; silvol 20%; colsar- gen; argant nitric	0	0	76
N. Y. C.....	21	0	0		1	11	33
Ohio†.....	592 (1)	4 (½%)	43 (1)	Argyrol 25, 20, 15, 2, ?%; mild sil- ver protein; boric acid; neo silvol 20 %; cargentos 10%; "brown drops"	4	7	650 (2)
Rhode Island.	0	1 (?%)	1	Zinc sulphate	0	2	4
Tennessee....	16	2 (?%)	9	Argyrol 15%	5	2	34

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.
Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.
* Louisville cases only.
† 1938 cases.

Table 2.—Analysis of Ophthalmia Neonatorum Cases by Type of Prophylaxis Used at Birth—Continued

Health area	Prophylactic used						Total case records, 1939
	AgNO ₃		Other		None	Not re- ported	
	1%	Other	No.	Type specified			
<i>States</i>							
Texas.....	1	0	1	Merthiate	2	1 (1)	5 (1)
Utah.....	1	0	0		0	0	1
Virginia.....	4 (1)	0	0		1	0	5 (1)
West Virginia.	1	1 (2%)	0		5 (1)	1	8 (1)
Wisconsin....	0	0	0		2	0	2
Sub-total...	787 (5)	64 (5)	70 (1)		42 (3)	106 (4)	1,069 (18)
<i>Territories</i>							
Canal Zone...	1 (1)	0	0	Argyrol 5%	0	0	1 (1)
Hawaii.....	1	0	0		0	0	1
Puerto Rico...	8	1 (?%) (1)	4		3	2	18 (1)
Sub-total...	10 (1)	1 (1)	4		3	2	20 (2)
<i>Provinces</i>							
Brit. Col.....	2	0	1	Argyrol 10%	0	0	3
Manitoba....	0	0	0	Argyrol 20, 10%	0	1	1
Nova Scotia..	2	0	3		0	0	5
Sub-total...	4	0	4		0	1	9
Newfoundland	1	0	2	Argyrol 5, ?%	1	0	4
Sub-total...	1	0	2		1	0	4
Total.....	802 (6)	65 (6)	80 (1)		46 (3)	109 (4)	1,102 (20)

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.
Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.

Table 3.—Analysis of Ophthalmia Neonatorum Cases by Type of Attendance at Birth

Health area	Attendant at birth				Not reported	Total case records, 1939
	Physician in		Midwife	Other		
	Hospital	Home				
States						
Alabama.....	1	7 (1)	3 (1)	0	1	12 (2)
Arizona.....	1	2	0	5	0	8
Arkansas.....	0	5	1	1	0	7
California.....	9 (1)	0	1	1	4 (1)	15 (2)
Colorado.....	0	3 (3)	0	1	0	4 (3)
Connecticut.....	0	2	0	0	0	2
Delaware.....	0	0	1	0	3	4
District of Columbia..	21	5 (1)	0	0	0	26 (1)
Florida.....	2	0	1	0	0	3
Illinois.....	24 (1)	7 (1)	0	0	0	31 (2)
Indiana.....	6	1	0	0	2	9
Iowa.....	1	1	0	1	1	4
Kentucky*.....	31	9	0	0	1	41
Louisiana.....	0	0	1	1	0	2
Maryland.....	1	2	3	0	0	6
Massachusetts.....	4	1	0	0	0	5
Michigan.....	4	3	1 (1)	0	0	8 (1)
Minnesota.....	3	1	0	1	0	5
Mississippi.....	1	12	38 (1)	3	0	54 (1)
Missouri.....	0	1	0	0	0	1
Montana.....	2 (1)	0	0	1	1	4 (1)
New York State (excl. New York City)	47	25	3	1	0	76
New York City..	20	3	2	1	7	33
Ohio†.....	155 (1)	490 (1)	2	0	3	650 (2)
Rhode Island.....	3	1	0	0	0	4
Tennessee.....	13	14	2	5	0	34
Texas.....	0	3	2 (1)	0	0	5 (1)
Utah.....	0	1	0	0	0	1
Virginia.....	2	0	2 (1)	1	0	5 (1)
West Virginia.....	0	3	1	4 (1)	0	8 (1)
Wisconsin.....	0	1	0	0	1	2
Sub-total.....	351 (4)	603 (7)	64 (5)	27 (1)	24 (1)	1,069 (18)
Territories						
Canal Zone.....	1 (1)	0	0	0	0	1 (1)
Hawaii.....	1	0	0	0	0	1
Puerto Rico.....	7	0	9	2 (1)	0	18 (1)
Sub-total.....	9 (1)	0	9	2 (1)	0	20 (2)
Provinces						
British Columbia....	2	1	0	0	0	3
Manitoba.....	0	0	0	1	0	1
Nova Scotia.....	3	2	0	0	0	5
Sub-total.....	5	3	0	1	0	9
Newfoundland.....	1	0	1	2	0	4
Sub-total.....	1	0	1	2	0	4
Total.....	366 (5)	606 (7)	74 (5)	32 (2)	24 (1)	1,102 (20)

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.
Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.
* Louisville cases only.
† 1938 cases.

Table 4.—Analysis of Ophthalmia Neonatorum Cases by Factors Influencing General Health Status at Birth

Health area	Prematurity			Malnutrition			Multiple birth			Infection in mother			Total case records, 1939
	Yes	No	N.R.	Yes	No	N.R.	Yes	No	N.R.	G.C.	Other	Unknown	
States													
Alabama..	1	11 (2)	0	5 (1)	7 (1)	0	0	12 (2)	0	1	0	11 (2)	12 (2)
Arizona...	0	6	2	2	4	2	0	6	2	3	0	5	8
Arkansas..	0	7	0	1	4	2	0	7	0	2	0	5	7
California.	4 (1)	10 (1)	1	1	7 (1)	7 (1)	0	11 (1)	4 (1)	1	0	14 (2)	15 (2)
Colorado..	0	3 (2)	1 (1)	0	3 (2)	1 (1)	0	3 (2)	1 (1)	2 (1)	0	2 (2)	4 (3)
Conn.....	0	2	0	0	2	0	0	2	0	0	0	2	2
Delaware..	0	0	4	0	0	4	0	0	4	0	0	4	4
D. C.....	3	3	20 (1)	0	2	24 (1)	0	2	24 (1)	0	0	26 (1)	26 (1)
Florida....	0	3	0	0	3	0	0	2	1	1	0	2	3
Illinois....	8	23 (2)	0	1	6 (2)	24	0	28 (2)	3	3	2 (1)	26 (1)	31 (2)
Indiana...	1	5	3	2	4	3	0	6	3	0	0	9	9
Iowa.....	1	1	2	0	1	3	0	1	3	1	0	3	4
Kentucky*	2	37	2	0	36	5	0	36	5	1	0	40	41
Louisiana.	0	2	0	0	2	0	0	2	0	0	0	2	2
Maryland..	2	4	0	0	5	1	0	6	0	0	0	6	6
Mass.....	2	3	0	0	5	0	0	5	0	1	0	4	5
Michigan..	2	4	2 (1)	0	5	3 (1)	0	8 (1)	0	0	0	8 (1)	8 (1)
Minnesota.	1	3	1	2	1	2	0	4	1	1	0	4	5
Mississippi	5	43 (1)	6	5	36 (1)	13	0	43 (1)	11	5	1	48 (1)	54 (1)
Missouri..	0	1	0	0	1	0	0	0	1	1	0	0	1
Montana...	0	4 (1)	0	0	4 (1)	0	0	4 (1)	0	1 (1)	0	3	4 (1)
N.Y.S. (ex. N.Y.C.)	4	71	1	0	0	76	0	0	76	6	5	65	76
N. Y. C..	8	22	3	2	25	6	1	28	4	5	0	28	33
Ohio†.....	0	0	650 (2)	0	0	650 (2)	0	0	650 (2)	0	0	650 (2)	650 (2)
R. I.....	0	0	4	0	0	4	0	0	4	0	0	4	4
Tennessee.	1	32	1	1	14	19	2	30	2	2	2	30	34
Texas.....	0	5 (1)	0	2 (1)	3	0	1	3 (1)	1	2 (1)	0	3	5 (1)
Utah.....	0	1	0	1	0	0	0	0	1	1	0	0	1
Virginia...	0	5 (1)	0	0	0	5 (1)	1	4 (1)	0	0	0	5 (1)	5 (1)
W. Va.....	1	7 (1)	0	3 (1)	4	1	0	7 (1)	1	0	0	8 (1)	8 (1)
Wisconsin.	0	0	2	0	0	2	0	0	2	1	0	1	2
Sub-total	46 (1)	318 (12)	705 (5)	28 (3)	184 (8)	857 (7)	5	260 (13)	804 (5)	39 (3)	13 (1)	1,017 (14)	1,069 (18)
Territories													
Canal Zone	0	1 (1)	0	0	1 (1)	0	0	1 (1)	0	0	0	1 (1)	1
Hawaii....	1	0	0	0	1	0	0	1	0	1	0	0	1
P. R.....	2	14 (1)	2	2	15 (1)	1	0	15 (1)	3	8	1	9 (1)	18
Sub-total	3	15 (2)	2	2	17 (2)	1	0	17 (2)	3	9	1	10 (2)	20 (2)
Provinces													
Brit. Col..	0	3	0	1	2	0	0	3	0	0	0	3	3
Manitoba.	0	0	1	0	0	1	0	1	0	1	0	0	1
Nov. Scot.	1	3	1	0	3	2	0	4	1	1	0	4	5
Sub-total	1	6	2	1	5	3	0	8	1	2	0	7	9
Newfound.	0	3	1	0	3	1	0	3	1	0	0	4	4
Sub-total	0	3	1	0	3	1	0	3	1	0	0	4	4
Total.....	50 (1)	342 (14)	710 (5)	31 (3)	209 (10)	862 (7)	5	288 (15)	809 (5)	50 (3)	14 (1)	1,038 (16)	1,102 (20)

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.

Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.

N.R.—not reported.

* Louisville cases only.

† 1938 cases only.

Table 5.—Analysis of Ophthalmia Neonatorum Cases by Interval Between Date Symptoms were First Noted and Date Reported to Health Officer

Health area	Interval between date symptoms first noted and date reported to health officer (in days)								Total cases reported, 1939
	Under 1	1 to 2	3 to 6	7 to 13	14 to 20	21 to 27	28 and more	N.R.	
States									
Alabama.....	0	2	3 (1)	2	3	0	0	2 (1)	12 (2)
Arizona.....	0	0	2	3	1	1	0	1	8
Arkansas.....	2	1	1	1	0	0	1	1	7
California.....	2	3	3	0	0	1	1	5 (2)	15 (2)
Colorado.....	0	1 (1)	0	0	0	0	0	3 (2)	4 (3)
Connecticut...	0	0	1	1	0	0	0	0	2
Delaware.....	1	1	0	2	0	0	0	0	4
Dist. of Col....	0	0	1	0	0	0	0	25 (1)	26 (1)
Florida.....	0	0	1	0	0	0	1	1	3
Illinois.....	4	8	7	5	2	0	0	5 (2)	31 (2)
Indiana.....	1	0	0	0	0	0	0	8	9
Iowa.....	0	1	1	0	0	0	0	2	4
Kentucky*....	10	1	0	0	0	0	0	30	41
Louisiana.....	0	0	1	0	0	0	0	1	2
Maryland.....	1	1	0	0	0	1	1	2	6
Massachusetts.	0	1	3	0	0	0	0	1	5
Michigan.....	2	2	1	0	1 (1)	0	0	2	8 (1)
Minnesota....	0	1	0	1	0	0	2	1	5
Mississippi....	16	7	12	5	1	2	4 (1)	7	54 (1)
Missouri.....	0	0	0	0	0	0	1	0	1
Montana.....	2	2 (1)	0	0	0	0	0	0	4 (1)
N. Y. State (ex. N. Y. City)	9	14	15	17	10	2	5	4	76
N. Y. City ..	2	6	3	9	2	1	7	3	33
Ohio†.....	196 (1)	240	124	48	15 (1)	9	9	9	650 (2)
Rhode Island..	0	0	0	1	0	0	0	3	4
Tennessee.....	1	8	13	5	4	2	0	1	34
Texas.....	1	0	0	0	0	0	0	4 (1)	5 (1)
Utah.....	0	1	0	0	0	0	0	0	1
Virginia.....	0	0	0	1	1	0	1 (1)	2	5 (1)
West Virginia.	2 (1)	0	3	0	2	0	1	0	8 (1)
Wisconsin.....	0	0	0	0	0	0	0	2	2
Sub-total...	252 (2)	301 (2)	195 (1)	101	42 (2)	19	34 (2)	125 (9)	1,069 (18)
Territories									
Canal Zone...	0	0	0	1 (1)	0	0	0	0	1 (1)
Hawaii.....	0	1	0	0	0	0	0	0	1
Puerto Rico...	3	2	6 (1)	4	1	1	1	0	18 (1)
Sub-total...	3	3	6 (1)	5 (1)	1	1	1	0	20 (2)
Provinces									
Brit. Columbia	0	0	1	1	0	0	0	1	3
Manitoba.....	0	0	1	0	0	0	0	0	1
Nova Scotia...	0	1	0	0	0	0	0	4	5
Sub-total...	0	1	2	1	0	0	0	5	9
Newfoundland	2	1	0	0	0	0	1	0	4
Sub-total...	2	1	0	0	0	0	1	0	4
Total.....	257 (2)	306 (2)	203 (2)	107 (1)	43 (2)	20	36 (2)	130 (9)	1,102 (20)

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.
Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.

N.R.—Not reported.

* Louisville cases only.

† 1938 cases.

Table 6.—Analysis of Ophthalmia Neonatorum Cases by Interval Between Date Symptoms were First Noted and Date Infant was Brought Under Medical Care

Health area	Interval between date symptoms first noted and date infant brought under medical care (in days)								Total cases reported, 1939
	Under 1	1 to 2	3 to 6	7 to 13	14 to 20	21 to 27	28 and more	N.R.	
<i>States</i>									
Alabama.....	7 (1)	3 (1)	0	0	0	0	0	2	12 (2)
Arizona.....	3	1	2	2	0	0	0	0	8
Arkansas.....	4	0	1	0	0	0	1	1	7
California.....	8	1	1	1 (1)	1	1	0	2 (1)	15 (2)
Colorado.....	1 (1)	0	1	1 (1)	0	0	0	1 (1)	4 (3)
Connecticut...	1	0	0	1	0	0	0	0	2
Delaware.....	2	0	0	2	0	0	0	0	4
Dist. of Col....	16	0	4	2	1 (1)	0	1	2	26 (1)
Florida.....	1	0	2	0	0	0	0	0	3
Illinois.....	22	3	1	1	1	0	0	3 (2)	31 (2)
Indiana.....	5	2	0	0	0	0	0	2	9
Iowa.....	1	0	1	0	0	0	0	2	4
Kentucky*....	26	8	1	5	0	0	0	1	41
Louisiana.....	0	0	0	1	0	0	0	1	2
Maryland.....	2	1	0	0	0	1	1	1	6
Massachusetts.	3	2	0	0	0	0	0	0	5
Michigan.....	3	2	1	0	1 (1)	0	0	1	8 (1)
Minnesota.....	2	1	1	0	0	0	1	0	5
Mississippi....	4	12	10	12	3	0	3 (1)	10	54 (1)
Missouri.....	0	0	0	0	1	0	0	0	1
Montana.....	4 (1)	0	0	0	0	0	0	0	4 (1)
N. Y. State (ex. N. Y. City)	39	17	10	3	3	1	2	1	76
N. Y. City ..	23	4	1	2	0	0	0	3	33
Ohio†.....	234 (2)	225	100	46	15	5	10	15	650 (2)
Rhode Island..	0	0	0	0	0	0	0	4	4
Tennessee.....	5	13	6	8	1	1	0	0	34
Texas.....	2 (1)	0	0	1	0	0	0	2	5 (1)
Utah.....	1	0	0	0	0	0	0	0	1
Virginia.....	3 (1)	1	0	0	0	0	0	1	5 (1)
West Virginia.	3 (1)	0	2	2	0	0	1	0	8 (1)
Wisconsin.....	0	0	0	0	0	0	0	2	2
Sub-total...	425 (8)	296 (1)	145	90 (2)	27 (2)	9	20 (1)	57 (4)	1,069 (18)
<i>Territories</i>									
Canal Zone....	1 (1)	0	0	0	0	0	0	0	1 (1)
Hawaii.....	1	0	0	0	0	0	0	0	1
Puerto Rico...	6	1	5 (1)	3	1	0	2	0	18 (1)
Sub-total...	8 (1)	1	5 (1)	3	1	0	2	0	20 (2)
<i>Provinces</i>									
Brit. Columbia	3	0	0	0	0	0	0	0	3
Manitoba.....	1	0	0	0	0	0	0	0	1
Nova Scotia...	4	0	1	0	0	0	0	0	5
Sub-total...	8	0	1	0	0	0	0	0	9
Newfoundland	4	0	0	0	0	0	0	0	4
Sub-total...	4	0	0	0	0	0	0	0	4
Total.....	445 (9)	297 (1)	151 (1)	93 (2)	28 (2)	9	22 (1)	57 (4)	1,102 (20)

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.

Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.

N.R.—Not reported.

* Louisville cases only.

† 1938 cases.

Table 7.—Analysis of Ophthalmia Neonatorum Cases by Interval Between Date of Birth and Date Symptoms were First Noted

<i>Interval between date of birth and date symptoms first noted</i>	<i>Gonorrheal infections</i>		<i>All other cases</i>	
	<i>Number</i>	<i>Per cent of total</i>	<i>Number</i>	<i>Per cent of total</i>
Under 1 day.....	16	4.7	105	14.3
1 to 2 days.....	60	17.6	200	27.4
3 to 6 days.....	145	42.6	189	25.8
7 to 13 days.....	94	27.6	219	30.0
14 to 20 days.....	12	3.5	13	1.8
21 to 27 days.....	7	2.0	2	.3
28 days or more.....	7	2.0	3	.4
Not reported.....	14	..	16	..
Total case records (ex. not reported).....	341	100.0	731	100.0
Range.....	Under 1 day to 34 days		Under 1 day to 33 days	
Median.....	5 days		4 days	

Table 8.—Analysis of Ophthalmia Neonatorum Cases by Place and Type of Medical Care

Health area	Hospitalized—care by			At home—care by			Place and type of care N.R.	Total case records, 1939
	Oph- thal- molo- gist	Other physi- cian	Nurse	Oph- thal- molo- gist	Other physi- cian	Nurse		
States								
Alabama	0	4	0	1	4 (1)	0	3 (1)	12 (2)
Arizona	0	4	2	0	2	0	0	8
Arkansas	1	4	0	0	2	0	0	7
California	5 (1)	6	0	0	0	0	4 ^a (1)	15 (2)
Colorado	2 (1)	1 (1)	0	0	1 (1)	0	0	4 (3)
Connecticut	1	1	0	0	0	0	0	2
Delaware	1	0	0	0	0	0	3 ^b	4
Dist. of Col.	11 (1)	1	0	0	0	0	14 ^c	26 (1)
Florida	2	0	0	0	0	0	1	3
Illinois	28 (2)	2	0	0	0	0	1	31 (2)
Indiana	5	1	0	0	0	0	3	9
Iowa	1	0	0	0	0	0	3	4
Kentucky*	0	41	0	0	0	0	0	41
Louisiana	0	0	0	0	1	0	1	2
Maryland	2	1	0	0	2	0	1	6
Massachusetts	5	0	0	0	0	0	0	5
Michigan	4	3 (1)	0	0	1	0	0	8 (1)
Minnesota	0	2	0	0	3	0	0	5
Mississippi	1	6 (1)	0	8	30	0	9	54 (1)
Missouri	1	0	0	0	0	0	0	1
Montana	0	3 (1)	0	0	0	0	1	4 (1)
New York State (ex. N. Y. C.)	16	0	11	12	2	4	31	76
N. Y. C.	22	7	0	0	0	0	4	33
Ohio†	16 (1)	91 (1)	27	1	298	216	1	650 (2)
Rhode Island	3	0	0	0	0	0	1	4
Tennessee	15	9	0	0	5	1	4 ^d	34
Texas	0	2	0	0	2 (1)	0	1	5 (1)
Utah	0	1	0	0	0	0	0	1
Virginia	0	0	0	0	0	0	5 (1)	5 (1)
West Virginia	1	1	0	2 (1)	3	0	1	8 (1)
Wisconsin	0	0	0	0	0	0	2 ^e	2
Sub-total	143 (6)	191 (5)	40	24 (1)	356 (3)	221	94 (3)	1,069 (18)
Territories								
Canal Zone	1 (1)	0	0	0	0	0	0	1 (1)
Hawaii	1	0	0	0	0	0	0	1
Puerto Rico	1	3	2	2 (1)	8	2	0	18 (1)
Sub-total	3 (1)	3	2	2 (1)	8	2	0	20 (2)
Provinces								
Brit. Col.	0	2	0	0	1	0	0	3
Manitoba	0	1	0	0	0	0	0	1
Nova Scotia	2	3	0	0	0	0	0	5
Sub-total	2	6	0	0	1	0	0	9
Newfoundland	2	0	0	0	1	1	0	4
Sub-total	2	0	0	0	1	1	0	4
Total	150 (7)	200 (5)	42	26 (2)	366 (3)	224	94 (3)	1,102 (20)

NOTES: Figures in parenthesis show number of cases resulting in impaired vision.
Excludes health areas in which no cases of ophthalmia neonatorum were reported and those from which no case records are available.
N.R.—Not reported.

^a 2 hospitalized.
^b 1 hospitalized.
* Louisville cases only.
^c 14 hospitalized.
^d 2 hospitalized.
† 1938 cases.
^e 1 hospitalized.

Table 9.—Analysis of Ophthalmia Neonatorum Cases by Duration of Medical Care

<i>Duration of medical care</i>	<i>Gonorrheal infections</i>		<i>All other cases</i>	
	<i>Number</i>	<i>Per cent of total</i>	<i>Number</i>	<i>Per cent of total</i>
1 to 2 days.....	13	4.5	26	3.7
3 to 6 days.....	33	11.3	79	11.1
7 to 13 days.....	89	30.6	191	27.0
14 to 20 days.....	47	16.1	174	24.6
21 to 27 days.....	33	11.3	66	9.3
28 to 34 days.....	29	10.0	57	8.1
35 to 41 days.....	16	5.5	29	4.1
42 to 48 days.....	5	1.7	15	2.1
49 to 55 days.....	13	4.5	8	1.1
56 to 62 days.....	6	2.1	12	1.7
63 days or more	7	2.4	51	7.2
Not reported.....	64	..	39	..
Total case records (ex. not reported).....	291	100.0	708	100.0
Range.....	1 day to 118 days		1 day to 172 days	
Median.....	14 days		15 days	

Appendix B

Brief Summary of Data Obtained from Special Survey of Ophthalmia Neonatorum Cases Occurring in New York City, 1931-1936 *

Cases previously reported to the Department of Health	23
Total cases found in hospital survey	1,344†
Cases resulting in some impairment—total	14 (3)‡
	<i>Both eyes</i> <i>One eye</i>
Blind	1 6 (2)
Impaired vision	2 (1) 5

ANALYSIS OF OPHTHALMIA NEONATORUM CASES REPORTED BY TYPE OF REPORTING

<i>Hospital group, by type of reporting</i>	<i>Type of case</i>				
	<i>Gonococcus infections</i>	<i>Other infections</i>	<i>Chemical irritation</i>	<i>Non gonococcus, not otherwise specified</i>	<i>Total all types</i>
	<i>Number of cases</i>				
Hospitals which report:					
All cases, by type	40	172	492	0	704
Gonococcus and "all other" cases	53	N.R.	N.R.	482	535
Gonococcus and other infections	9	57	N.R.	N.R.	66
Gonococcus cases only	39	N.R.	N.R.	N.R.	39
No cases occurring	0	0	0	0	0
Total cases	141†	229	492	482	1,344
	<i>Rate per 1,000 live births</i>				
Hospitals which report:					
All cases, by type . . . . .	.68	2.92	8.35	.00	11.95
Gonococcus and "all other" cases	1.79	..	..	16.27	18.06
Gonococcus and other infections . . . . .	.60	3.83	..	..	4.43
Gonococcus cases only . . . . .	.65	..	..	..	.65
No cases occurring . . . . .	.00	.00	.00	.00	.00
Average rate	0.73	1.19	2.56	2.50	6.98

* From manuscript doctorate thesis on "Ophthalmia Neonatorum in New York City," by Harold Horn Lowenstein, M.D., May, 1939.

The study was based on a count of cases occurring in thirty-three hospitals in New York City during the period 1931-1936, inclusive. Live births in these hospitals totalled 192,478, or 31% of the 629,300 live births in the city.

† Excludes 61 cases born outside of the hospital but hospitalized for treatment.

‡ Figures in parenthesis () indicate the number of cases of impaired vision resulting from chemical irritation.

Conference of State and Provincial Health Authorities

Case Record for Reporting Ophthalmia Neonatorum

Name, initials, or case no.....Date of birth.....

Birthplace (city and/or county and state).....

Premature: yes.....no.....Malnutrition: yes.....no.....Multiple birth: yes.....no.....

Care at birth: in hosp.....phys.....mdw.....other.....

Prophylaxis at birth: type.....strength.....no. times used.....

Inflammation of the eyes: Date first noted:.....

Laboratory tests: yes.....no.....

Organism causing infection: g.c.....other (specify).....unknown.....

Date reported to health authorities:.....

Date medical care: began.....ended.....

Type of care: in hospital, by oph.....other phys.....special nurse.....

in home, by oph.....other phys.....special nurse.....

Type of treatment.....

.....

Eye conditions at completion of treatment:

General degenerative changes: both eyes.....one eye.....

Corneal scars: both eyes.....one eye.....

Vision at completion of treatment:

Blind: both eyes.....one eye.....

Vision impaired, but not blind: both eyes.....one eye.....

Good vision retained: both eyes.....one eye.....

Prenatal care of mother: Begun in.....month of pregnancy

Any evidence of infection of birth canal diagnosed: g.c.....

other (specify).....not diagnosed.....

Treatment for infection given: yes.....no.....

Nature of treatment, if treated.....

.....

Any special prophylaxis of birth canal of mother before or at time of delivery.....

.....

.....

This record form was prepared for the Committee on Conservation of Vision for use in the study of ophthalmia neonatorum cases authorized by the Conference of State and Provincial Health Authorities on April 21, 1939.

Information is requested for inclusion in a nation-wide study only; no information concerning individual cases will be disclosed. Names will not be needed unless it is desired that the Committee assume responsibility for securing additional information from other agencies.

It is requested that records be secured for all cases reported to health officers. Copies of said records will be forwarded to the National Society for the Prevention of Blindness, Inc., 1790 Broadway, New, York, N. Y., for tabulation. Additional copies of the form may be secured from the Society.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

The Visually Handicapped Child in the Rural Community*

The visually handicapped child in the rural community presents quite a problem, not only from the educational standpoint, but also from the standpoints of eye hygiene and social adjustment. It is important for this child to get an education, just as it is for any other child, but he must get it in a way that will not further harm his already defective eyes, and that will not add to his emotional upset.

The method generally accepted for educating these children is not always possible in rural communities. To unite three or four small school districts in order to have enough children for a sight-saving class would in the majority of in-

stances be impossible because of transportation difficulties and differences in policy among school districts. For these reasons, we have been attempting for several years to carry on individual sight-saving class routines with the children in various isolated communities.

The program was initiated in Pennsylvania in 1932 by Miss Evelyn M. Carpenter, then supervisor of conservation of vision for the Council for the Blind. It did not get well under way, however, until about 1935, after the interests of the Departments of Health and Instruction were aroused. The Division of School Medical Inspection also co-operated well, as later did the Division of Special Education. The cost of clear-type books was prohibitive for the smaller school districts, so Miss Carpenter conceived the idea of having high schools with commercial courses purchase bulletin typewriters so

* Condensed from a paper read before the Pittsburgh meeting of the International Council, and reprinted with permission from the *Journal of Exceptional Children*, April, 1940.

that the commercial students could, as a part of their work, copy lesson plans in bulletin type for the visually handicapped children in the district. On the other hand, magnifying lens units were used where advisable, and large type books purchased when possible.

Our program in Allegheny County was started about 1934 by the Prevention of Blindness Department of the Pittsburgh Branch of the Pennsylvania Association for the Blind, as a means of helping the visually handicapped children known to the department to be having difficulty in accomplishing their school work. Large type books were bought by the department and loaned to the children as a demonstration to the school districts. The program has grown slowly, so that we have at the present time 38 children, with sight-saving equipment, spread over 31 different school districts—public and parochial—in Allegheny County and in two neighboring counties. Included in the group are children (1) with progressive conditions who require not only special equipment but also an understanding of their eye conditions by the school and the home, and (2) children with congenitally defective eyes who need sight-saving equipment to help them get along.

We started out with very few large type books. You who have seen price lists for these books know how much more they cost than do

the average texts. We were able to draw on special contributions from women's clubs for the most part, which aided greatly in enabling us to buy more books as our number of referrals increased. Some of the school districts, unable to buy complete sets of books for their youngsters, would purchase several books a year, borrowing some of ours to supplement, and then would return to us theirs and ours at the end of the term. In this way we enlarged our own collection, and had the schools participating in the expense involved. Last year the Pittsburgh Lions' Council gave the Allegheny County Medical Society some money to be used for preventive medicine. The County Medical Society, familiar with our program and aware of the Lions' interest in work with the blind, turned that fund over to us, and with it we have enlarged our collection to the point where, with a great deal of care exercised in the lending, we have available a fairly adequate collection of books.

We do ask that the schools purchase books whenever possible, and also that they provide the soft black lead pencils, dull mat off-white paper, yellow chalk if needed, India ink, and other smaller items. We interpret to the school the need for adequate light, and attempt to locate the best-lighted and best-situated desk in the room for the child. In one instance we were surprised to find that an entire school

building was relighted after we had been unable to find a classroom spot with five foot-candles of light for one of our boys. We do not take credit for that relighting, because the school board and the parent-teachers' association had for some time been contemplating it, but our findings helped to hasten their decision.

Periodic visiting of homes and schools is required for these children. In an ideal situation, probably monthly visits should be made, with perhaps even more frequent visits when the program is first started. Unfortunately, we carry this work as one small part of a large prevention of blindness program, and being inadequately staffed at best, we cannot possibly manage the ideal amount of visiting. We do, however, try to get around to each district several times a semester, particularly to those children who are progressive myopes. Telephone calls help, and it is gratifying to find teachers that are sufficiently interested in their children to call with a list of questions or to write asking for suggestions and advice on particular problems that arise. Many of the teachers have also visited the sight-saving class in Pittsburgh to gain ideas and information.

We well realize that the big type books do not fit the curriculum in most of the schools, and that our program adds an extra burden to already overburdened teachers. Yet

only once have we had a refusal to use the books; always the reply is, "We'll make them fit, even if it does mean extra work and planning." In the one instance where we were refused, the books were later accepted and used because the child in question was a progressive myope, and her eyes became rapidly worse during the school year.

There are a few other provisions that we usually make which might well be mentioned here. We have, with the approval and close supervision of the doctor, loaned the magnifying lens and light units to some children. These units do not work with all children with defective vision (not with progressive eye conditions) and have to be introduced on a trial and error basis. Of two children with identical defects, either, neither, or both may be able to use the unit. One may use it with the light, the other without. When it can be used, it is a help, because it simplifies the program by making special books unnecessary. There is another provision that we have not yet completed, but are in the process of doing. We have several children in parochial schools whose catechisms we are copying in bulletin type. This is being done completely by volunteers and will, we feel certain, be a great help to the children.

There is also a project now under way in Pennsylvania in which twenty-four point type books are being printed for the use of these

children. The first book is by Rugg and Krueger in the field of social studies, and is entitled *Man and His Changing Society*. The printing and binding are being done by the National Youth Administration, under the close supervision and cooperation of the State Council for the Blind. The book will, we hope, be completed by next September.

After the seventh grade we have the problem of no longer being able to obtain the large print books. In some high schools NYA students, or others, act as readers. We feel that if the blind can obtain higher education with the help of readers, surely the visually handicapped can also. For the boys, there are trade schools available in some districts; in others, they can be sent to the schools in Pittsburgh. The same is true for the girls, but it is not quite as popular with them. The vocational problem is about the same as it is for any sight-saving class child, with the additional problem of lack of facilities in the rural area that might be available in the urban community.

The program is always carried out with the approval of the examining ophthalmologist. Cases are referred to us by ophthalmologists, school nurses, principals, and others. It is a common experience to have an oculist ask how he can get a child from X township into the Pittsburgh sight-saving class. We, of course, have to tell him that it is impossible, but that we can set up

an individual program for that child in his local school, if the oculist so desires. Then, after a period of time, that same oculist will call again to ask whether we have any influence in Y district, and whether we can set up a program there. It is gratifying to be able to tell him that no influence is needed—but that we shall be glad to present the problem and the program to the school, and are certain that it can be worked out. Also, we sometimes receive a referral, “Admit to the School for the Blind *unless* sight-saving work is available.” That type of referral needs no further explanation, because there is no *unless* for these rural children.

The above sets forth our program. It has been interesting, difficult, even distressing at times, but gratifying at others. All hard spots are erased when the doctor calls to tell us that “Helen can resume normal school activities, because her myopia has been under control for two years with a sight-saving program.” This is particularly good when we know that formerly it increased a diopter every six months under ordinary school routine. We realize that we have just scratched the surface of the county in locating the children in need of this special aid; but we feel that the awareness of the possibilities is becoming greater, and hope that some day it may grow to the extent where it can be taken out of the

hands of our private agency and carried by special educational departments where it rightfully belongs.

—MARCELLA S. COHEN
Pittsburgh, Pa.

Nursing Functions Which Contribute to the Promotion of Eye Health*

Introduction

This statement was prepared by the Nursing Advisory Committee of the National Society for the Prevention of Blindness† to show how the nurse in any phase of nursing may help to promote eye health. Public health nursing aspects in this outline have been cleared with the National Organization for Public Health Nursing.

Protection and promotion of eye health are a function of nursing. Indirectly all nursing functions which contribute to general health also assist in maintaining the health of the eyes and in saving sight. The prevention of ophthalmological conditions, however, lies largely in recognition of the interrelation of eye health and general health and in the

development of health, educational, industrial, and social programs which give adequate consideration to the maintenance of eye health. Nursing functions in such programs contribute both directly and indirectly to the health of eyes.*

Nursing Functions

The functions of the nurse in relation to eye health are outlined as follows:†, ‡

1. To help analyze problems related to eye health and participate in formulating adequate health programs with due regard to eye health.
2. To help develop and co-ordinate community services and programs for the protection and promotion of general and eye health, utilizing community resources to aid individuals.
3. To assist in adjustment of environmental conditions to favor the health, safety, and comfort of the eyes through:
 - a. Helping to eliminate hazards to the eyes.
 - b. Helping to secure adjustment of lighting and posture to meet individual needs for safe, com-

* Published simultaneously in the *American Journal of Nursing*, *Public Health Nursing*, and the *Sight-Saving Review*.

† The members of the Nursing Advisory Committee are Katharine Tucker, Chairman, Naomi Deutsch, Elinor D. Gregg, Mary B. Hulsizer, Joanna Johnson, Pearl McIver, Josephine McLeod, Cora Shaw, Ruth Sleeper, Marguerite A. Wales, and Eleanor W. Mumford, Associate for Nursing Activities, National Society for the Prevention of Blindness.

* Mumford, Eleanor W. A Program for Staff Education—Eye Health. *Public Health Nursing*, vol. 32, nos. 2 and 3. February and March, 1940, pp. 112-121, 197-202. Available in reprint form from the National Society for the Prevention of Blindness, New York, N. Y.

† Johns, Ethel, and Pfefferkorn, Blanche. An Activity Analysis of Nursing. Committee on the Grading of Nursing Schools, National League of Nursing Education, New York, N. Y.

‡ Functions in Public Health Nursing. *Public Health Nursing*, vol. 28, no. 11, Nov., 1936, pp. 732-736.

fortable, and efficient use of the eyes.

4. To assist in medical examinations, including ophthalmological examinations, and in arranging for such examinations and in administering or supervising screening tests to discover visual defects and eye disturbances.

5. To note evidences of normal and abnormal ocular functioning, referring to physician individuals presenting evidences of deviations from normal.

6. To teach scientific health facts and practices related to the health of the eye. Some of the points for emphasis are:

- a. The relation of normal eye functioning to (1) general health; (2) nutrition; and (3) practices in the use of the eyes in health and in illness.
- b. Protection of the eyes from injury and infection.
- c. First aid principles and practices as applied to eye injuries.
- d. Resources for authentic eye health information and for care of ophthalmological and related systemic conditions.

7. To help secure adjustment of visually handicapped individuals through:

- a. Interpreting to the patient, family, school or industrial personnel, or social agency the problem and its relation to general physical, mental, and emotional health and its social implications.
- b. Assisting in the adjustment of educational, recreational, and vocational conditions to meet the needs of the individual.

c. Developing, maintaining, and utilizing community resources for the visually handicapped.

8. To help prevent and minimize damage to the eyes from disease, injury, and infection, through:

- a. Discovering individuals with eye conditions and related health problems, and helping to secure early diagnosis and medical care.
- b. Rendering or securing nursing care of the sick and of those suffering from ocular disturbances.
- c. Teaching by demonstration and supervising care given by relatives or attendants, giving due consideration to (1) eye manifestations of systemic disease; (2) systemic and local symptoms of ocular disturbance; (3) protection of the eyes from infection and injury and from strain during illness and convalescence; and (4) adjustment of factors which favor eye comfort with special attention to conditions of close eye work during illness.
- d. Assisting in the prevention and control of infections and of communicable diseases which affect the eyes; encouraging early immunization, early medical diagnosis, isolation, and adequate care throughout illness and convalescence.
- e. Assisting in the prevention and control of non-communicable diseases which affect the eye; encouraging periodic physical examinations, including ophthalmological examinations.

Points for Emphasis

Through the application of these functions, the following points should be emphasized in both the preventive and curative aspects of programs for maternal health, for the health of infant and preschool children, for the health of school children, and for the health of adults.

1. *Maternal Health*.—A program on maternal health should include:

- a. Nutrition.
- b. Elimination of accident hazards in the home and the relation of lighting and vision to accidents.
- c. Early discovery and adequate care of toxemias of pregnancy.
- d. The prevention and control of syphilis and gonorrhea.
- e. The prevention and control of ophthalmia neonatorum, including the use of an adequate prophylactic, prompt reporting, early medical and nursing care.
- f. The significance of hereditary factors and the early discovery of abnormalities in newborn babies.

2. *The Health of Infant and Preschool Children*.—The following aspects should be emphasized:

- a. Normal eye functioning and the development of muscle coordination; early medical care for children whose eyes do not appear to function normally.
- b. Practices in use of the eyes which recognize the status of normal eye development in children of this age.

- c. Development of methods for discovering children in need of ophthalmological care, including observation and simple screening tests.
- d. Periodic health examinations, including examinations of the eye; correction of defects.
- e. Nutrition.
- f. Preventing eye accidents; encouraging use of safe toys.
- g. First aid in eye injuries.
- h. Prevention and control of communicable disease, including immunization and particular consideration to the care of the eye in the acute communicable diseases, and to the eye aspects of late-developing congenital syphilis.
- i. Safeguarding the eyes of children from strain during convalescence from illness.

3. *The Health of School Children*.—All that is included under the health of infant and preschool children should be applied also to school children. In addition, special consideration should be given to:

- a. A school environment which is safe and conducive to favorable practices in the use of the eyes; provision of visual materials suitable to the normal eye development of children of school age, proper lighting, and adequate safety devices.
- b. A curriculum which recognizes the developmental factors of eye health and provides opportunities for children to develop habits favorable to eye health.
- c. A health service which assists in the discovery of eye problems and related general

health problems of individual children and helps parents to arrange for needed care.

- d. Adjustment of educational and recreational programs and facilities for visually handicapped children.
- e. Interpretation to parents and teachers of the mental and emotional aspects of visual handicaps.
- f. Elimination of eye hazards in schools and playgrounds and provision of adequate safety equipment.

4. *The Health of Adults.*—The points which are enumerated below should receive special consideration in colleges and industrial health services as well as in other services to adults.

- a. Periodic health examinations, including examination of the eyes; correction of defects.
- b. Danger to eye health from:
 - (1) Focal infections.

- (2) Communicable diseases, especially tuberculosis, syphilis, and gonorrhea.

- (3) Noncommunicable systemic diseases such as nephritis, diabetes, cardiovascular diseases.

- (4) Injuries and burns.

- (5) Irritants such as heat, dusts, and other industrial hazards.

- (6) Chemicals, drugs, and other types of poisoning.

- c. Adequate safety devices for the prevention of eye injuries.

- d. First aid in eye injuries.

- e. Environmental factors conducive to safe, comfortable, and efficient use of the eyes, including adjustment of lighting to visual needs; selection of visual materials.

- f. Emotional and social aspects of visual handicaps and adjustment of handicapped individuals; correlation with programs for rehabilitation of the handicapped.

News of State Activities

THIS Section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Brief and timely items only can be used, because of the limitations of space

Illinois

“Trachoma Clinics.—A very close watch is being kept in the Illinois Trachoma Clinics in regard to the type of cases now reporting for treatment. It has been found that during the past year only twelve Stage I cases have reported. This figure has considerable significance and may mean that we are reaching the outer edge of the control of this disease in Southern Illinois.

“In order to be sure that every single case in the sixteen southern counties of the State has been diagnosed, the Illinois Society for Prevention of Blindness started on September 1 to run a series of diagnostic clinics each Saturday morning in different towns. These are all small towns, far removed from any of the trachoma clinics so that transportation might have kept people from coming into the big clinics. The schedule for these clinics is as follows:

“September 7, 1940.....	Eddyville	Vienna
September 14, 1940.....	Keensburg	Eldorado
September 21, 1940.....	Pinckneyville	Herrin
September 28, 1940.....	Hearld	Shawneetown
October 5, 1940.....	Alto Pass	Jonesboro
October...12, 1940.....	Bay City	Vienna
	(Boaz, Rosebud)	
	(New Liberty)	
	(Hamburg)	
October 19, 1940.....	Rinard	Eldorado
October 26, 1940.....	Chester	Herrin
	(Tamora)	
November 2, 1940.....	Karbers Ridge	Shawneetown
November 9, 1940.....	Bell Rive	Eldorado
November 23, 1940.....	Grand Tower	Jonesboro
November 30, 1940.....	Mt. Carmel	Eldorado”

—*Illinois Society for the Prevention of Blindness, Chicago, Ill.*

Indiana

"The Committee on Conservation of Vision of the Indiana State Medical Association will have an Educational Exhibit at the Indiana State Fair at Indianapolis this year. Blind workers will operate a loom and cane chairs to attract attention to the booth, which will contain attractive posters to convey the message of prevention.

"The Committee also joined with similar Committees from other states in introducing a resolution in the meeting of the American Medical Association at New York this year, requesting the co-ordination of the work of conservation of vision throughout the United States, by a Committee to be appointed by the officers of the American Medical Association.

"The Resolution was adopted by the Section of Ophthalmology of the A. M. A. and sent to the governing body.

"Dr. C. W. Rutherford spoke, in June, before the Lions Club State Convention at Richmond, on Conservation of Vision."

—Committee on Conservation of Vision,
Indiana State Medical Association, Richmond, Indiana

Kentucky

From Linda Neville.—"With the gradual extension of the so-called full-time health departments into more and more counties—they are now in 80 or more counties—there has been a gradual annual increase in the number of newborn gonorrheal babies discovered, with a consequent gradual annual increase in the number of appeals to me for hospitalization. In the first few months of each fiscal year I try to postpone the admission of patients who need surgery for cataracts and to accept as patients, besides the gonorrheal cases, only such emergency cases as those needy eye sufferers with glaucoma or with recent eye accidents. I try to husband our finances for the benefit of the indigent gonorrheal babies, who, alas! are sure to need to come for hospitalization.

"About 30 days before the close of the past fiscal year, on June 30, about 15 days before the closing of certain figures with the estimate for expenditures likely to be made between June 15 and the end of the fiscal year, I was much upset in mind. On about June 1, several hundred dollars of the appropriated \$2500.00 were still unclaimed by me. I began quickly to offer hospitalization to a number of applicants, planning to send several to St. Joseph Infirmary, Louisville, for board, at one dollar per day, and operating room thrown in without charge. Soon there were several patients there. And soon, too, there were brought to us at Lexington some

gonorrheal babies, who, of course, could not be kept waiting. And when June 15 came, instead of my being able to present to the State, with assurance of payment, an estimate of the expenses to be incurred through June 30, I found that all the appropriation had been used up by our patients' expenses and that July first would find the Mountain Fund in debt many, many dollars.

"During this six-months period just passed, from July 1 to January 1, even though I delayed hospitalizing many applicants, yet the emergency cases used up more than one-half the annual appropriation. Four gonorrheal babies, the first arriving November 4, and not one of them left in the hospital after December 23—these four babies ran up a total account for hospitalization and for nursing of \$1,072.40 chargeable against our State appropriation. (A certain fiscal court had agreed to pay for the baby from its county the hospital and nursing cost for ten days, and ninety-two dollars and forty cents was the amount.) From July 1 to November 4 expenses for other patients had already run up into hundreds of dollars. It is a matter of great satisfaction to me that not since the departure from the hospital of the last of those four gonorrheal babies has there come in any new case. (This is January 17, 1940.)

"As a mere lay person I hesitate to say anything even in description about the various methods used by various oculists or by one oculist at various times for the prevention of blindness from gonorrheal ophthalmia among the babies.

"Among the Lexington oculists who have cared for our gonorrheal cases there are different usages, different drugs. There seems to be no uniformity of procedure.

"Soon after the discovery of the efficacy of sulfanilamide against the gonorrheal germ, it was used on our newborn gonorrheal babies, if they seemed in condition for it. Whenever a baby with gonorrhea came to us soon after premature birth, and whenever a baby with gonorrhea came to us weighing less than five pounds—one weighed about three and one-half pounds—there were precautions to take. But the discussion of medicine would be out of place here.

"From March 1, 1936, through to January 1, 1940, even though there was some question as to the diagnosis in the case of two or three babies, there were 41 babies under my care, each with a definite diagnosis of gonorrheal ophthalmia. Of these 41, as I recall—and the facts were so burned into me that I hardly need study records about them—there were two babies blind in both eyes upon arrival and two other babies although blind in both eyes upon arrival yet retaining light perception each in one eye. It happened that of the first two babies mentioned above, both had been born

prematurely, and one died in the hospital. Then of the 51 babies, one lost the sight of one eye in the hospital and another lost the sight of both eyes there. This baby, who left the hospital with both eyes blind, died within a few weeks.

"Of the 51 babies, two developed each a scar in one eye; but in neither case was the scar blinding, or even interfering much, if at all, with sight.

"Of the 51, if my memory is serving me aright, and I think it is, 49 babies left the hospital, two having died there; and of the 49, 41 upon leaving the hospital were not only free of gonorrhea but had eyes free of scars.

"I believe that our record is one to be thankful for, even though I find that my distress over one eye blinded—rather, not saved from blindness—in the hospital is hardly counterbalanced by my joy over the rescue of all those other eyes.

"When the day nurse and the night nurse are discharged after having brought to a successful issue the nursing of one of our gonorrheal babies, after six or eight weeks of hospitalization, I may fail to pay to those nurses the tribute of praise that is rightfully theirs.

"I have no part in the nursing. I am not a nurse. But every baby with gonorrheal eye infection for whom I undertake to provide treatment has already in writing been entrusted to me personally. And I am responsible morally even though the parent or the guardian promises not to hold me responsible. That means responsible legally.

"In 1939, besides 14 young babies with gonorrheal eye infection that we hospitalized in Lexington as patients of the Mountain Fund, there were two more babies. One of these babies, a colored baby from Hart County, had been reported by the State Department of Health laboratory as positive for gonorrhea, but when the baby entered the Lexington hospital the laboratory report there was negative. And the quickness with which the eyes were cleared of all discharge confirmed the Lexington oculist in his diagnosis of 'no gonorrhea.' For a short time before being brought to Lexington the baby's eyes had treatment. That treatment had probably been completely effective in destroying the gonorrheal germs. Although we do not count that baby as among our own babies with gonorrhea, yet I shall say that, because of the fact that the baby's laboratory report had been positive, we had to take the precautions incident to the care of a positive case with the consequent high per diem cost for isolation and special nursing.

"It may not be amiss here to say that in some cases the oculists have had to defer their diagnoses. One baby whose eyes failed to show clinical signs of gonorrhea upon admission immediately was

found to have a laboratory report that was positive. In another case when upon admission the eyes were showing several symptoms indicative of gonorrhea the laboratory reports were at first and for some days negative, afterwards turning to positive. The policy of our oculists is to consider such doubtful cases as positive and to order isolation and special nursing.

"In addition to the 14 babies with positive gonorrhea of the eyes and the fifteenth baby found free of gonorrhea upon arrival there was a sixteenth baby. This baby, when two weeks old, was by long distance telephone from the Hickman County Health Department reported to me as needing immediate enucleation of one eye blinded by gonorrhea. After the surgery was done for the baby in a Mayfield hospital I secured payment of the hospital bill by the State. In that way that baby is included among the gonorrheal babies in my list, with the explanation that in a strict sense it was not our baby."

Missouri

"Anti-Fireworks Crusade.—The Committee for the Conservation of Eyesight of the Missouri State Medical Association has made arrangements with the Missouri State Health Department to install an exhibit at the Fortieth Annual Missouri State Fair in behalf of a state law forbidding the indiscriminate use of fireworks throughout the state.

"More than a quarter million people attended the fair last year and it is to be hoped that enough people can be interested in the proposed law that it will be passed at the next session of the legislature in 1941.

"St. Louis, Kansas City, and many other cities throughout the state have such ordinances and the saving of life, limb and sight has been so outstanding that a state law is desired.

"It is of interest to report that the resolution of the Committee on Conservation of Eyesight of the Missouri State Medical Association to the American Medical Association was instrumental in influencing that body and its eye section to adopt a resolution to appoint a Conservation of Vision Committee of the A.M.A."

—Committee on Conservation of Eyesight,
Missouri State Medical Society, St. Louis, Mo.

Tennessee

“What Has Been Done and Accomplished by the Sight Conservation Service, May 6, 1938, to June 13, 1940.—1. Twenty-eight hundred cases of blindness have been surveyed and classified as to their causes of blindness and a report submitted upon them. This group represents 2,500 cases from the Aid to the Blind Survey, which is now up-to-date; 170 cases from the Survey of the Tennessee School for the Blind, which was made in October, 1938; 125 cases from a Survey of Office Cases handled during the fiscal year 1938–1939; and 5 cases from the Fireworks Survey conducted in 1939. Important facts that this survey disclosed are: 1,362 of these cases for a total of 48.6 per cent have a chance to have varying amounts of sight restored in one or both eyes, and approximately 43 per cent of this group have a chance to have enough sight restored to them to permit of some gainful occupation; 1,820 of these cases for a total of 65 per cent might have had blindness in one or both eyes prevented if the proper preventive measures had been in existence or available, and if full co-operation had been obtained from each party connected with each individual case of blindness, either before blindness occurred or while it was coming on.

“2. Geographical surveys on the cases of trachoma and ophthalmia neonatorum occurring in these 2,800 cases were conducted and disclosed the following:

“A. Fifty-two per cent of the trachoma cases occurred in middle Tennessee, 30 per cent in western Tennessee, and 18 per cent in eastern Tennessee.

“B. Fifty per cent of the ophthalmia neonatorum cases occurred in eastern Tennessee, 28 per cent in middle Tennessee, and 22 per cent in western Tennessee.

“3. Forty-eight talks on the causes of blindness and their prevention have been made by the Director of the Service during this period before various lay, medical, and nursing groups, reaching approximately 5,250 persons.

“4. The talking slide film on ‘The Nurse’s Responsibility in Saving Sight’ has been shown 21 times to various lay, medical, and nursing groups, reaching approximately 2,400 persons.

“5. Two sight-saving classes have been established with the assistance of this service, both in Nashville: one in the Public School System and one in the Tennessee School for the Blind, caring for from 24 to 27 visually handicapped children.

“6. Three sight-saving class teachers have had special training for this work.

"7. The Centennial Club of Nashville makes available each year \$200, which may be used either for the purpose of training a sight-saving class teacher, or for the purchase of non-expendable equipment for a sight-saving class.

"8. One hundred and three children have been found who are eligible for enrollment in sight-saving classes, either permanently or temporarily, and their visual handicap has been corrected as much as it could be corrected.

"9. Three hundred and fifty persons, the majority being children, have had varying amounts of vision restored to them in one or both eyes; 11 other persons have had surgical operations to restore sight and some sight has been restored to all.

"10. Two hundred and five persons either have had or are having partial or total blindness prevented in one or both eyes, the majority being children; the chief causes of blindness being prevented were blindness due to amblyopia exanopsia, sympathetic ophthalmia, glaucoma, trachoma, pterygia, focal infections, and possibly progressive myopia.

"11. Four of our Lions Clubs are carrying on active co-operative programs with the service, these being: the Nashville Club, the Gallatin Club, the Waverly Club, and the Centerville Club. All of these programs are concerned with the visually handicapped child. Other Lions Clubs over the state, from time to time, have assisted the service at its request in individual, single cases.

"12. The co-operation of the eye physicians of the state was obtained in the very beginning of the work and has been maintained. The eye physicians of the state have contributed approximately \$14,000.00 worth of medical care to indigent persons referred to them by the service.

"13. During the last 11½ months there has been an increase in sight restoration by 6.3 per cent over the previous year and an increase in the prevention of blindness of 41 per cent over the previous year, with an expenditure of \$370 less of state funds.

"14. During this period, funds for glasses and hospital expenses in the amount of \$2,044.14 have been contributed by various Lions Clubs, Civic Clubs, Women's Clubs, Parent Teachers Associations, interested individuals, and a few patients.

"15. A co-operative plan for preventing blindness and restoring sight by the eye physicians and hospitals of the state has been prepared and has been accepted by my advisory committee of ophthalmologists and a few hospitals, but, as yet, has not been accepted by the state, due to insufficient funds to put it in operation.

"16. During the first year of operation a sufficient number of people were rendered ineligible for Aid to the Blind to result in an

annual saving of \$12,300.00 to the State and Federal Government and it can be anticipated that enough persons will be rendered ineligible for Aid to the Blind during the second year, not only to equal this amount, but to exceed it."

—*Director, Sight Conservation Service,
Tennessee State Department of Health, Nashville, Tenn.*

Washington

"A volunteer speakers' bureau of eye physicians was organized during the winter of 1939-40. These ophthalmologists were located in the various parts of the State, and have been available for talks before club groups, lodges, P.-T. A. and other school groups. In addition to discussion with the eye physicians making up this volunteer group, an outline was given to each ophthalmologist suggesting the subject matter which should be covered. The speakers' bureau will continue through this next year with the same subject matter. At a later date, after fairly good coverage has been secured on these subjects, the Medical Eye Advisory Committee to the Division for the Blind hopes to continue the speakers' bureau service with a new outline of subject matter. The Division for the Blind has found that the speakers' bureau service has been readily accepted by local groups and is considered an important part of community education regarding eye care and common causes of preventable blindness."

—*Division for the Blind, State Department
of Social Security, Olympia, Washington*

Note and Comment

Eyes are Expensive Targets.—The United States Compensation Commission recently reported the results of a study of 47,306 eye injuries occurring to WPA project workers in two and a half years. The total direct cost of these injuries was found to be \$1,464,061, or five cents per \$100 payroll, and, with the addition of the indirect costs, the estimated financial toll was cited at \$7,320,305, or \$155 per eye injury case.

It was found that eye injuries involving no loss of time accounted for 85 per cent of the cases reported, 18 per cent of the total direct cost, and averaged \$6.38 per case. Eye injuries causing temporary total disability accounted for 13 per cent of the injuries surveyed, 10 per cent of the total direct cost, and averaged \$25 per case with an average disability duration of 12 days. Of the 1,072 eye injuries resulting in permanent disability, 25 such injuries, or 2.3 per cent, involved permanent total disability. The average direct cost per permanent partial disability was found to be \$907 and that of the permanent total cases \$4,278. Of the 1,047 permanent partial disability cases, approximately 12 per cent represented enucleations, the remaining 88 per cent being functional disabilities of a permanent nature averaging about 60 per cent loss of vision of an eye.

The Commission also reported that eye injuries represented 6 per cent of the temporary injury cases reported, 13 per cent of the cases reported with no loss of time, and 20 per cent of the permanent injury cases reported.

The Treacher Collins Prize Essay.—The Council of the Ophthalmological Society of the United Kingdom has instituted a triennial prize of 100 pounds for the best English essay submitted by a qualified medical practitioner of any nationality, on a subject selected by the Council. One award having been made, the closing date for submission of essays for the second award will be December 31, 1941. The subject selected is: "Allergic Affections of the Eye and Its Adnexa." Essays should be submitted, or inquiries addressed, to the Honorable Secretary, Ophthalmological Society of the United



Presentation of Leslie Dana Gold Medal—1940

Mrs. Anna F. Harris, former executive secretary of the St. Louis Society for the Blind, presenting the Leslie Dana Gold Medal for 1940 to Mr. John M. Glenn, as Dr. Conrad Berens pays him tribute, at luncheon meeting of the Association for Research in Ophthalmology

Mr. Glenn, who is Honorary Vice-President of the National Society for the Prevention of Blindness, received the award for his outstanding achievements in prevention of blindness and the conservation of vision. He was selected for this honor by the St. Louis Society for the Blind, through which the medal is offered by Mr. Leslie Dana, of St. Louis.

Kingdom, 5 Racquet Court, Fleet Street, London, E.C. 2. Material entered in this contest should not reveal the identity of the author, but must be marked with a distinguishing pseudonym or quotation which should also appear on a sealed envelope containing the candidate's name and address.

Glasses for the Color-Blind Motorist.—Dr. Brittain Payne points out in a recent issue of the *American Journal of Ophthalmology* that lenses, the upper one-fourth of which is of dark red glass, have recently been introduced for the benefit of the color-blind. The principle of the glasses rests on the filtering out of the "green light"; when a light is seen through the red segment, the motorist knows that either the stop or the caution signal is in operation. All types of color-blindness react in the same way to the glasses, and they can also be used for the person who is not color-blind.

Several years ago spectacles with a red-free filter were introduced. With these the driver sees a dark image for the red signal and a bright light for the green and yellow. The new glasses are thought to be less confusing, however, as the motorist knows he must stop when he sees any light whatsoever and does not have to depend upon a change of intensity.

Blindness in Australia.—Sir James Barrett, in his presidential address before the Ophthalmological Society of Australia, dealt not only with the causes and prevention of blindness and partial-sightedness, but also gave an interesting account of the history of the invention of the Braille type. He indicated that the treatment of ophthalmia neonatorum is well understood and not very common in Australia, and that many sufferers from congenital syphilitic blindness are subnormal generally. Although there seems to be an increase of myopia and retinitis pigmentosa in this country, trachoma, once a scourge, is rapidly declining. In Melbourne, trachoma patients are now seen and treated as old cases, although forty years ago this was the principal part of an oculist's work. It is said to be still common in western New South Wales and Queensland. Sir James commented on the successful use of prontosil for the treatment of trachoma, which has been used in the United States, and said that it is now being tested in Melbourne. He also

recalled that out of a quarter of a million British troops stationed in Egypt, where 80 per cent of the people were afflicted with trachoma, there were only 50 cases among the British troops.

Retinitis Pigmentosa and Night Blindness.—A familial picture of night blindness reported in three of four generations is presented by Dr. Lyle S. Powell and Richard L. Dunlap in a recent *Journal of the Kansas Medical Society*. As night blindness is observed to be a common symptom of retinitis pigmentosa, the authors present the history of an adult male patient whose grandfather and two siblings, whose father, and whose six brothers and sisters have experienced difficulty in seeing after dark. Two siblings of the patient, as well as three of his father's, and the three children of the patient—the fourth generation, now in their late teens—have been unaffected. Ophthalmoscopic studies of the subject showed a typical fundus picture of retinitis pigmentosa. Although its cause remains unknown, this disease has been frequently observed to affect certain families—notably those in which related marriages have taken place. The authors discuss the two etiological theories, giving consideration to recent indications of two forms of retinitis pigmentosa—one a dominant, fairly frequent form, and possibly hereditary, recessive forms. No correlation has been found to be clinically demonstrable between the dominant and the recessive types. However, the four generations noted by Drs. Powell and Dunlap appear characteristic of the dominant type of affected family, the transmission occurring through the male members.

The "Black-Out" and Eyestrain.—As the black-out in warring countries affects many conditions of ordinary life, the National Ophthalmic Treatment Board in England has recently published a little pamphlet giving suggestions for relieving and avoiding eyestrain under these circumstances. The author advises following the example of the countryman and the old-time townsman by keeping indoors as much as possible and going to bed earlier. As more close work, as knitting and sewing bandages, is done at home than in peace time, it is suggested that this type of work be spaced out with games, several of which are mentioned. When it is necessary to go out at night during the black-out, the Board requests that

the light be kept pointed downwards so that the individual may see where the curbstone lies, so that others will see the spot of light on the ground and will not run into the pedestrian, and so that other persons on the street will not be dazzled and momentarily blinded by suddenly having a light flashed in their eyes.

Schools Throughout Country Install Improved Lighting.—One of the most striking features of a report on a year's progress in illumination, printed early in 1940 after presentation at the 1939 Annual Convention of the Illuminating Engineering Society, is that section which deals with the relighting of schools. A Georgia city has completed installation in its entire system of eight schools of modern indirect illumination averaging better than 20 foot-candles of light per desk. In Philadelphia, plans were drawn and completed, and work begun, on the relighting of some 5,000 school-rooms. Shaw High School in Cleveland, repainted and relighted, is considered so outstanding an example to educators as to achieve the reputation of a model. Further evidence of aroused light consciousness appears in the statement that one eastern school builds study lamps complying with I.E.S. specifications as part of its manual training course. Survey figures presented indicate that the recommendations carried in *American Recommended Practice of School Lighting* are now from 10 to 20 per cent realized.

Vitamin D in Relation to Progressive Myopia.—The significance of Vitamin A in treatment of night blindness has received much recent attention, but studies of the Vitamin D complex in relation to progressive myopia represent a new advance in prevention and alleviation of this ominous and baffling eye condition. An article on the subject in the *American Journal of Ophthalmology* states that myopia treated from the standpoint of rectifying vitamin deficiency shows encouraging response to ingestion of Vitamin D, leading the author, Dr. Arthur Alexander Knapp of New York, to hope that the cause of this defect is nearer solution. Conspicuous deficiencies of calcium have been related to myopic eye conditions and Dr. Knapp reports indications that the Vitamin D complex plays a part in the etiology of keratoconus. Dogs used in preliminary experiments manifested induced myopia resulting from diets low in

calcium and deficient in Vitamin D. Selected human patients with established myopia believed to be progressive were chosen for further study, regulated amounts of calcium tablets and Viosterol being the only innovation in their diets during the trial period. Summaries show that 66.67 per cent of the patients adhering to the prescribed regimen either remained stationary or showed a reduction in their myopia. In the entire series of studies, 50 per cent revealed reduction in their visual deficiency, or were unchanged when re-examined. It is suggested that the vision of patients manifesting a diminishing hyperopia may also be improved by calcium- and Vitamin D-fortified diets.

Travelling Ophthalmologists Check Trachoma.—Mobile treatment units in European and Oriental countries advance into the rural and isolated districts in the fight against trachoma. Traveling eye clinics, supervised by ophthalmologists, patrolled many remote sections of Poland, treating 28,000 patients and performing 885 operations, during the summer of 1936 alone. A similar unit, organized by the Japanese Red Cross, operates in Nagasaki, at moderate cost, reaching and treating several hundred trachomatous patients daily.

The Delhi Province of India boasts a travelling dispensary especially designed for handling of eye cases in its rural areas. It is also a surgery and an ambulance, whose doctors and nurses disseminate popular health educational material.

Soldiers' Eyes Visored Against Blindness.—Most of the eye casualties of the last war resulted from penetrating eye wounds caused by small metallic fragments. Well over half the total war blindness was caused by fragmentation from explosives. “. . . It is surely fundamental that prevention should precede treatment,” said Sir Richard Cruise, presenting for unanimous approval by the annual congress of the Ophthalmological Society of the United Kingdom a perfected protective soldier's visor. Based on experiments destructive to exposed human eyes, the soldier's visor is a molded duralumin shield fitted and riveted to the inner curvatures of the helmet. By a spring attachment it may be raised above the eyes, within the helmet, or easily lowered when required. The

perforated section is of a mesh so fine that, while complete protection from flying particles is afforded, the vision of the wearer is but slightly interfered with. Since the cost of manufacture is negligible and the total weight of visor and adjustments very light, a resolution recommending immediate adoption of the visor was enthusiastically passed.

Local Use of Vitamin A in Ophthalmic Conditions.—Dr. Stephen de Grósz of Budapest, finds that the local application of vitamin A is of greater significance in the field of ophthalmology than is oral or intramuscular administration. It has been customary among laymen in Hungary to apply milk and butter to the eye for treatment of various ocular diseases irrespective of their etiology. The local application of vitamin A was first undertaken by Russian observers; cod-liver oil was employed by Lohr for trophic conditions; E. Stephenson in England drew attention to its use in keratitis due to mustard gas; Federici held that it was more effective than synthetic remedies. De Grósz, using a preparation containing 1,000 international units of vitamin A in one centimeter of oil or ointment, finds it not only of value in promoting epithelization of fresh corneal lesions, for example, erosions after extracting foreign bodies, but that it also has a powerful analgesic effect, which has made it invaluable for injuries from industrial gases, and in warfare. The oily preparation is beneficial for wounds of the eyelids as well as for injuries and burns of the conjunctiva. In his experience the most important indication for local treatment with vitamin A is in the herpetic forms of corneal disease, in which cases the epithelium is loosened by the first movement in the morning and torn off with great pain. This can be prevented by instilling vitamin A oil at night. He notes an excellent example of this in a case of alcoholization of the Gasserian ganglion with subsequent severe keratitis. De Grósz concludes that vitamin A as a local remedy not only helps epithelization but is truly a protective agent for the epithelium.

Fewer Young Eyes Darkened by Blindness.—Convincing proof of lowered incidence of infant blindness appears in a reporting of the age groups represented in a registered blind population of 1,807

persons resident in Sunderland, England. The total of 1,807 included no infants under one year of age, and but a single child less than five years old!

Alvin L. Powell.—The REVIEW reports with regret the death of one of its valued editors, Mr. Alvin Leslie Powell, whose work in illuminating engineering is known to all. Mr. Powell not only served on the editorial board, but was always ready to be of help in giving his valuable advice on the subject of lighting to members of the Society's staff. Among his practical achievements were the lighting in Rockefeller Center, for which he was lighting consultant, and lighting effects used in Radio City Music Hall, many of which he originated.

Dr. Park Lewis.—As we go to press, we announce with sorrow the death of one of our founders, our beloved Vice-President, Dr. Park Lewis. A later issue of the REVIEW will be devoted to paying him homage.

Current Articles of Interest

The Treatment of Corneal Ulcers, Mason Baird, M.D., and Grady E. Clay, M.D., *Southern Medical Journal*, April, 1940, published monthly by the Southern Medical Association, Empire Building, Birmingham, Alabama. The occurrence of corneal infection from three sources—trauma or foreign bodies, systemic causes, and by spread from surrounding ocular tissues—is here discussed. Trauma followed by entrance of bacteria is classified as a typical cause of the exogenous ulcer; the tubercle results from endogenous conditions; and phlyctenular and superficial keratitis indicates spread of disease from adjacent tissue. Progressive, regressive and cicatrizing stages of corneal ulceration are successively discussed and described. Subsequent corneal opacities are stated to become less dense with the passage of time, the youth of the patient aiding clearing of the scar. The authors prescribe cleanliness, heat, rest, and protection as acknowledged essentials of treatment. They further commend use of normal saline solution, boric acid solution, 1:3000 metaphen, and direct application to the lid of hot, moist compresses in preference to electric pad or hot water bottle. One per cent atropine sulphate solution dilates the pupil and insures eye rest. Uncomplicated infected and keratitic ulcers are bandaged, and pads changed as frequently as cleansing is necessary. General treatment of all possible foci of infection is emphasized, the teeth being of particular significance. Vitamin therapy is of definite consequence in treatment of corneal ulcers. The authors report startling improvement in cases of kerato-conjunctivitis through a régime of combined vitamin A administration, saline irrigation, and application of pads to the eye while active ulceration persists. The efficacy of sulfanilamide in ophthalmia neonatorum is conceded, but in addition a 5 per cent mercurochrome solution is recommended by Drs. Baird and Clay, who observed no dramatic cure in their treatment with sulfanilamide of other than gonorrheal corneal ulcers. Six years' experience indicates X-ray therapy as the treatment of choice, producing marked and swift decrease of edema and pain. Details of administration

are appended. The authors, in conclusion, deplore a prevailing tendency to overtreat corneal ulcers, advising instead the simplest possible effective treatment.

Use of Sulfanilamide Compounds in Ophthalmology, Jack S. Guyton, M.D., Baltimore, Maryland. *American Journal of Ophthalmology*, August, 1939, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. The use of sulfanilamide compounds in general medicine is reviewed by the author, who presents the following conclusions:

"Forty-three cases treated with sulfanilamide compounds in the Johns Hopkins Hospital because of ocular inflammations are reported, with the following results:

"a. No appreciable effect was noted in 14 cases of 'gonococcal' uveitis, either from the standpoint of alleviating the acute attack or of preventing recurrences.

"b. No apparent effect was obtained in five cases of ocular tuberculosis.

"c. Four out of eight cases of purulent intra-ocular infection exhibited spectacular cures: one of these was a metastatic meningococcal panophthalmitis with beta streptococcus in the anterior chamber, one was a postoperative panophthalmitis with staphylococcus aureus in the conjunctival sac, and the fourth was a post-operative endophthalmitis of unknown etiology.

"d. Significant results were obtained in five cases of infection of the lids or orbit; four of these were known to be due to beta hemolytic streptococci.

"e. Significant improvement was noted in two cases of trachoma (stage 3); improvement was more notable than in two other cases of trachoma treated with intravenous tartar emetic.

"f. Two cases of inclusion blennorrhea were cured within six days.

"g. A cure of doubtful significance was obtained in one case of pneumococcal conjunctivitis and corneal ulcer by the use of sulfapyridine.

"h. One case of corneal ulcer associated with streptococcal and staphylococcal conjunctivitis responded significantly. (Sulfanilamide was used locally as well as internally.)

"i. No appreciable effect was noted in five other miscellaneous cases."

Current Publications on Sight Conservation

Note.—The National Society for the Prevention of Blindness presents the most recent additions to its stock of publications. Except for the more expensive ones, single copies are sent free upon request. Unless otherwise specified, they are reprinted from **THE SIGHT-SAVING REVIEW**. New publications will be announced quarterly.

334. Possibilities of Restoration of Sight and Prevention of Blindness in the Aid to the Blind Program, Anna M. Harrison. 20 p. 15 cts. Describes the work of the State Department of Public Welfare in restoring sight and preventing blindness in Louisiana.

335. The Visually Handicapped Child in the Rural Community, Marcella S. Cohen. 12 p. 5 cts. Reprinted from the *Journal of Exceptional Children*, April, 1940.

336. Personal Reminiscences, John M. Glenn. 12 p. No one is better qualified to reminisce on the early days of the prevention of blindness movement in the United States than the author, who was a founder of the Society and is today one of the honorary vice-presidents.

337. Study of Prevention of Blindness from Ophthalmia Neonatorum. 24 p. 15 cts. This report was prepared in co-operation with

the National Society for the Prevention of Blindness through its consultative relationship with the Committee on Conservation of Vision of the State and Provincial Health Authorities of North America. It supplements the material published in 1939, in publication 301.

338. Nursing Functions which Contribute to the Promotion of Eye Health. 12 p. 5 cts. Presented by the Nursing Advisory Committee of the National Society for the Prevention of Blindness, and published simultaneously in the *American Journal of Nursing*, *Public Health Nursing* and the **SIGHT-SAVING REVIEW**.

D138. Eye Health Problems in Nursing, Eleanor W. Mumford, R.N. 4 p. (\$1.00 per C; \$7.50 per M.) Presents the subject of the nurse's responsibility in the maintenance of eye health of patients. Reprinted from the *Pacific Coast Journal of Nursing*, August, 1940.

Contributors to This Issue

Anna M. Harrison, who describes the development of sight restoration in the state of Louisiana, is the State Medical Social Worker for the Blind of the Louisiana Department of Public Welfare.

No one familiar with the sight conservation movement in the United States needs an introduction to **John M. Glenn**, formerly general director of Russell Sage Foundation and a founder and honorary vice-president of the National Society for the Prevention of Blindness.

Dr. P. Bailliart is the president of the International Association for Prevention of Blindness, whose activities have necessarily been suspended because of the tragic European events.

As supervisor of the Prevention of Blindness Department of the Pittsburgh branch of the Pennsylvania Association for the Blind, **Marcella S. Cohen** is making a continuous contribution in the field of sight conservation.

The School Ophthalmic Service *

Austin Furniss, D.P.H., L.D.S.

SINCE the school set-up in England varies from the American, only those parts of this author's article which have an application to American conditions have been included in this extract.

THE eye and the ear are the chief gateways of learning, therefore defects here are of prime importance. Impaired eyesight is one of the commonest and most potent defects which stand in the way of a child's school education. A service for the treatment of a particular condition or defect can only be made comprehensive by an efficient organization in which the ascertainment of children suffering from that defect is complete. The earlier the ascertainment, the better the results of treatment. This applies to many other conditions besides defective vision, crippling defects being a good example. It is very important that arrangements should be fully developed for the ascertainment of defective vision and eye disease in children below school age. In the case of school children suffering from defective vision the most important means of ascertainment is the system of school medical inspection.

The work of the school doctor and the school nurse in the ascertainment of children suffering from defects can be made effective only by the active co-operation of the teachers. The teachers are in daily touch with the children and are in a more favorable position to detect symptoms indicative of a defective special sense than is a school doctor who sees the child only occasionally. Thus if a teacher notes that a child holds the book too close to the eyes, or sits in a stooping position at the desk, or complains of not being able to see the blackboard, or is backward, he should refer the child to the school medical officer for early examination. Similarly, chil-

* Extracted, with permission, from the *British Journal of Ophthalmology*, Vol. XXIII, April, 1939.

dren with inflammatory eye disease, or with squint can be detected by the teacher, who should refer them for special attention.

Vision in Young Children

The child gradually appreciates varying degrees of brightness, learns to focus on near or distant objects by the effort of "accommodation," acquires stereoscopic vision, and judges distance and color. The development of these processes is slow and conforms, with due allowance for differences in individual children, to a more or less definite pattern. The growth of the eyeball is most rapid in the first two years of life, and by the age of seven it has almost attained its maximum size. A great amount of this growth is due to increase in thickness of the coats of the eye, though the increase in the diameter of the cornea between birth and maturity is only two mm., or approximately 20 per cent. This increase occurs almost wholly during the first two years of life. The rapidity of growth displayed by the eyeball is even more noticeable than that of the brain, and it is not surprising that the eye should be peculiarly susceptible to injurious influences during early childhood. The process of adaptation which enables the eye to focus rays of light from near as well as from distant sources is known as "accommodation." Most orderly muscular efforts, such as those involved in walking and respiration, involve the alternate use of antagonistic sets of muscles. "Accommodation" for near vision is, however, peculiar since it frequently involves sustained muscular effort extending over a considerable period of time. The muscular effort entailed in continued reading is of a type comparable with that required to hold the arm up for a long time, and symptoms of ocular fatigue may therefore be frequently observed in school children. The normal eye, if overworked, may suffer from fatigue, and such fatigue is likely to occur even more readily in children who have an error of refraction; they are working under a visual handicap. Among the ordinary symptoms of eyestrain are headache, frowning, twitching, blinking, and rubbing of the eyes. There may be, in addition, some inflammation of the external parts of the eye, as blepharitis and conjunctivitis. These external eye diseases are by no means invariably due to eyestrain; they may be produced by external infection—dust and dirt, by bad nutrition, or by unclean-

liness. Since, however, the lymphatic drainage of the eyeball is hampered by sustained ocular effort, such conditions will always tend to be aggravated when any eyestrain is already present.

The Visual Acuity—Snellen's Test

Under the school medical service the usual procedure is to test children with Snellen's long-distance chart, as a preliminary to refraction by the eye specialist.

The test is usually carried out by school nurses before or at routine inspections in the school. Care should be taken that the illumination of the chart is adequate (the illumination should be at least 10 foot-candles), that the child does not face bright light while being tested, and that the distance from the chart is 20 feet or 6 meters. The standard adopted in most areas is that if a child can read no further than 6-12 (20/40) with either eye he is referred for full ophthalmic examination. If, in addition, all cases showing symptoms of eyestrain, no matter what the visual acuity is, are referred, the majority, though not all, children in need of ophthalmic supervision are picked out. The Board of Education's Committee on Defective Vision (1931) emphasized three main points:

"1. The comparative rarity of emmetropia (normal condition) at any age, the condition being observed in only 2-3 per cent of children at the age of admission to school. Although its incidence increases with age it does not exceed 10 per cent among children about to leave school.

"2. The rarity of myopia (short sight) in children under five and the gradual increase in incidence as age advances.

"3. The great preponderance of hypermetropia (long sight) and even of high hypermetropia at all ages, though the incidence diminishes as age advances."

These conclusions enable us to infer that the eyes of children are in a dynamic state; that at birth the normal condition is one of hypermetropia, which is converted as time goes on to one of emmetropia; and that overaction in this otherwise physiological process produces a condition of myopia.

The Committee previously referred to found that although myopia of even slight degree usually gives rise to some visual defect,

the latter may not be of sufficient extent to insure that all cases are examined by refraction. Similarly, hypermetropia may be of moderate extent, even up to three diopters, without giving rise to a visual disability severe enough to refer the case for fuller examination. The correction of moderate hypermetropia of children by the provision of spectacles may be of little importance, but it is unquestionable that all cases of myopia, however slight, should be kept under observation. Emmetropia, too, which, if the inference concerning the dynamic state of children's eyes be correct, may be a stage in the conversion of the hypermetropic to the myopic eye, should be regarded with suspicion in cases where there is a family history of myopia. It is evident, therefore, that under examination by Snellen's long-distance chart, on which we base our preliminary selection of children for refraction by the eye specialist, a certain number of visual conditions requiring observation and possible treatment are missed until the visual acuity defect becomes so pronounced as to cause the child to be brought before the ophthalmic surgeon. The only method of completely overcoming this defect in the system of ascertainment would be to arrange that every child, soon after admission to school, is examined by refraction. This perhaps sounds an ideal, though it does not appear to be outside the realm of practical reality. The examination would need to be carried out only once in the school life of the large majority, for most children would reveal a normal condition of eyesight and therefore they would be exempt from re-examination.

Another defect in the system is that children are not subjected to a test of visual acuity until the age of eight. This can be overcome partly by the use of special charts, e.g., the E chart for illiterate children, though testing by such charts is tedious and the results are unreliable unless the test is carried out by an expert. The variable E test card, i.e., one in which the E signs can be rotated in any desired direction, although an old method, is suitable for many purposes. The children should be drilled to turn their extended fingers into the position of the limbs of the E shown. This method of examination has been proved, by tests with mentally defective children, to require the smallest degree of mental work. No recognition of an arbitrary character, or naming of a sign, is required, only the minimal capability of imitation, and the

power to put the fingers into the position of the E shown. No words are required, only the motion of the hand.

Returning to the E chart for young children and illiterates, I should have mentioned that the chart is utilized fairly extensively in the testing of preschool and young children, from three years old upwards in certain cities of America. This work is actively encouraged by the National Society for the Prevention of Blindness, who regard the early correction of errors of refraction as a very important factor in the pursuance of their policy. Even admitting the impracticability of using the E chart in a routine examination of infants, and the unreliability of the results obtained from it, it still remains a matter of importance that some visual test should be applied to children at the earliest possible age. If the nurses in their periodic visits to the schools tested the vision of children over six years of age, as previously stated, it would fill in that hiatus which exists between the time when the child is admitted to school and the intermediate (second-age group, eight years old) medical examination, and secure examination and appropriate treatment by an ophthalmic surgeon of many cases of defective vision, which in the ordinary course of events would not be discovered until one or two years later. Some years ago the Board suggested that school medical officers should give this matter their earnest consideration, and investigate the practicability of making a test of visual acuity of children at an earlier age than is done under the present system.

Examination and Treatment

The following are the principal activities which are comprised under the heading "Examination and Treatment":

1. Examination and treatment of defective vision due to errors of refraction.
2. Examination and treatment of squint.
3. Examination and treatment of children suffering from diseases of the eye.
4. Selection, treatment, and supervision of "partially-sighted" and "blind" children.
5. Testing of color vision by group and individual tests.

Dr. Carr, school oculist, Derbyshire, put the case of ophthalmic work very succinctly some years ago. "The primary objects of a school ophthalmic service must be the preservation of sight, that is to say, preventive; and the amelioration of defective vision already existent, that is to say, curative. The correction of refractive errors constitutes a preponderating proportion of the work of the ophthalmic surgeon, but it is by no means the most important. A correctly prescribed pair of glasses will improve a patient's vision, or enable him to use his eyes with greater comfort, and very often will do both, and may even have a remarkable effect on his health and ability to profit by instruction, and thereby on the whole of his future career. But by treating a corneal ulcer and getting it to heal before it has done irreparable damage, or by operating on a cataractous eye, the oculist has the satisfaction of preventing blindness in the first instance and of curing it in the second."

The successful working of arrangements for the treatment of children suffering from defective vision depends on large measure on the efficiency of the arrangements for "following-up" individual children by the school nurses. The nurses must keep in touch with children for whom spectacles are prescribed in order to make sure that such spectacles are obtained. Children who require periodical examination, e.g., those with myopia, should attend the clinic at the appropriate intervals determined by the ophthalmic surgeon. The nurses must inspect children for whom spectacles have been provided in order to ascertain whether those children are wearing spectacles, or whether any children through loss or damage need new spectacles.

They should test the visual acuity of all children with spectacles at least once a year, and refer any children with a change for the worse in visual acuity for full examination. The teacher is invaluable in this system of "following-up." In most areas it is usual to provide head teachers with lists of children who should be wearing spectacles and to ask for their co-operation in seeing that the children wear them, and in referring any children, who have broken or lost their spectacles, to the clinic. Thus the teacher is important in inducing children for whom spectacles have been prescribed, to get them and wear them. Children, through forgetfulness or in-

tention, fail to bring their glasses to school; glasses by accident or carelessness get broken. These untoward incidents can be avoided or corrected by the teacher, the first by the exercise of discipline, the second by the immediate reference of the case to the clinic or medical officer. Without action on her part, children who ought to be wearing spectacles may remain without them for an indefinite period and much harm may result as a consequence. Educational backwardness and disability are some of the symptoms of defective vision. The teachers alone are in a position to recognize this symptom, and their duty is to refer all children who fail to keep up with the normal classwork for full examination by the medical officer, assisting him with their knowledge of the child's visual disability and of any signs of headache or neurotic conditions.

Two other points will be dealt with here, although not strictly belonging to this section. Conditions in the classroom should be made to conform as far as possible with the general principles of hygiene of vision. Attention should be paid to lighting, to the position of blackboards, desks, and books in relation to the posture of children at the desks, and to the position in the classroom of children who suffer, or are suspected of suffering, from defective vision. The second point is that even an apparently simple procedure such as vision testing may have its pitfalls, for apart from the obvious essentials, too often neglected, such as suitable lighting, height of the test card, proper technique on the part of the observer, due regard must be given to the psychological "make-up" of the child. It has been known for a long time that defective lighting of classrooms may contribute towards the production of visual defects or may at any rate have a detrimental effect on defects already existing, but the exact amount of injury due to this factor is as yet by no means clear. Many school doctors have explored this subject. Some years ago the school ophthalmologist of Leicestershire, Mr. C. Walters, inspected a number of schools and he considered that in seven of them the lighting was defective. Four of these were among six schools showing the highest percentage of children wearing glasses. He found, of course, that the correlation between defective lighting and a high percentage of children wearing or requiring glasses was by no means exact, but the

following table from a report made by him at the time suggests a relationship:

<i>School conditions, lighting, seating accommodation</i>	<i>Total number of children</i>	<i>Number wearing glasses</i>	<i>Percentage wearing glasses</i>	<i>Number suf- fering from eyestrain</i>	<i>Percentage suffering from eyestrain</i>
Good	2,281	156	6.7	129	5.6
Defective	1,686	147	8.7	181	10.7

In concluding this section it can be said that in no branch of the work is this co-operation of the teachers more needed in the prevention, ascertainment and treatment of visual defects in school children.

Dr. Allardice reporting to the Wakefield Education Committee gave details of what appear to him to be the essentials of a complete ophthalmic scheme and his recommendations arise from the desire to secure the detection of defects at an early stage when treatment could be more effective and would have greater preventive value. His scheme is this:

1. The care of the eyesight of the expectant mother at the ante-natal clinic;
2. The treatment of ophthalmia neonatorum at the infant welfare clinic;
3. Ophthalmic examination of all entrants to school;
4. Reference of external eye disease to minor ailment clinic;
5. Routine refraction work at eight and twelve years of age;
6. Regular re-examination;
7. Tests for color blindness;
8. Use of the open-air school for myope classes;
9. Continuous attention to children entering on secondary education and those beyond fourteen years of age.

Myopia

Myopia generally first shows itself from the age of eight, when school work begins in earnest—that is, when convergence is first used in excess. Donders reached the classification that myopia exists in three forms—a stationary, a temporarily progressive and a continuously progressive. Dr. Gimblett in the East Ham School Medical Officer’s Report for 1929 wrote that comparatively few cases were noticed during the first year of school life, more ap-

peared in the second, but by far the greater number were discovered between the ages of eight and twelve.

Dr. Gimblett is of the opinion "that the incidence of myopia is affected by heredity, previous illness (particularly the acute specific fevers), and school competition." He observed that those schools distinguished by a high standard of education and competitive spirit have an incidence of myopia above the average of the other schools of the area. Out of the 170 myopes, 35 or 20 per cent were "scholars," while of the total school population of East Ham the "scholars" number $5\frac{1}{2}$ per cent. It is interesting to note that both the incidence and progress of myopia varied directly with the standard of scholarship in the different schools. Out of the 170 cases, 29 had fundal changes when they were first seen, in three of which they became more marked while the child remained under observation. In 15 cases at first free from changes, they appeared later. An examination of the summaries of these cases suggested that the presence of fundal changes is more closely related to the rate of progress of myopia than to the extent of myopia present. As a general rule children show myopia of a comparatively mild form, and though the incidence increases with the age of the child its severity seems to bear no relation to age, the severe cases being as common in the earlier age groups as in the later. Thus we can say that myopia does not manifest itself to any great extent during the early school life of the child, but becomes more common from the eighth year onwards. In many cases structural peculiarities in the eyes no doubt favor the development of myopia, but it is probable that other cases are directly due to conditions prevailing in the schools which cause undue eyestrain. Dr. James Kerr, many years ago said: "Any child in an elementary school with marked myopia, unless the myopia can be retarded, is in a very dangerous condition as regards vision in later years."

Examination and Treatment of Children With Diseases of the Eye

This branch of an ophthalmic service has particular importance as regards the prevention of defective vision and even of blindness in that it deals with eye disease. At the outset it should be mentioned that the majority of cases of external eye disease, such as conjunctivitis, blepharitis, corneal ulcers, corneal abrasions, ker-

atitis, styes, foreign bodies, etc., are referred in the first place to the minor ailment clinics, and practically all are treated there. In the case of severe inflammatory conditions and chronic states, the child is referred to the special ophthalmic clinic. Here the case will come under expert examination and advice. A few cases, e.g., interstitial keratitis, may need treatment at a hospital or special clinic. In some cases, such as intractable blepharitis or phlyctenular conjunctivitis, the children often receive considerable benefit by a stay in a residential open-air school. Occasionally prolonged treatment under hospital conditions are required on account of the severity of the inflammation or the infectious nature of the disease, e.g., trachoma.

There are, of course, visual defects which do not depend on errors of refraction. Mr. Paterson, the school oculist to the Darlington Education Committee, reported a few years ago the discovery of a number of cases of night blindness, the cause being xerophthalmia. The condition appears to have been quickly remedied by adding to the children's diet an adequate supply of foods containing vitamin A. In all areas there are cases of children presenting ocular symptoms in whom an exhaustive examination discloses no physical defect. The percentage of such cases varies considerably in different places, but in Portsmouth, Dr. W. S. Inman found that 25 per cent of children attending the Eye Clinic required no active treatment. They were mostly "nervous" children, and he discussed the question as to whether their symptoms were produced by disharmony of mind rather than of body, and concluded by saying: "Child guidance clinics are being formed in London, and it cannot be long before they exist in every educational center in the country. One method of recognizing the nervous child will be by the disparity between the severity of the symptoms and the condition of the eyes. A happy, healthy child does not complain without just cause. If an ocular cause cannot be found and no other adequate organic explanation of the symptoms is present, the aid of a psychological department should be available."

A New Concept of Visual Performance in Industry*

Hedwig S. Kuhn, M.D.

AS an ophthalmologist working with industry today, Dr. Kuhn is well qualified to point out the relation of eyesight to industrial efficiency and to emphasize the necessity of analyzing visual performance and its relation to the job.

PERHAPS the most dangerous person in today's complex economic set-up is the unconscious saboteur. In industry this employee is the eye cripple. His number is legion. His lack of visual co-ordination makes of him an unwitting, and usually totally unconscious, so-called "Fifth Columnist."

Industry must give recognition to this employee because he is a potential threat to both safety and progress, as we see it, in the effort to obtain maximum efficiency in our program for national defense. He can wreck a rearmament program just as easily as the faulty depth register in his vision can cause him to misjudge the dump spot for a crane ladle of molten metal and snuff out the lives of a dozen workmen.

In our discussion of "A New Concept of Visual Performance in Industry," or "Eyes for the Job," we are going to touch upon some of the phases of this problem. But, first of all, as an ophthalmologist working with industry as well as in private practice, I must say one thing with the utmost seriousness—to be privileged to participate in the swift-moving and completely absorbing drama of industry, as it operates in America, is both an opportunity and a heavy responsibility.

Industry has evolved through three main phases: the phase of tools or machine skill; the phase of developing the handling of raw

* Presented at the National Safety Congress, Chicago, October 9, 1940.

materials; and finally, the phase in which we are today especially interested, that of human skills (see Figure 1).

Complexity of Industry's Problems

The enormous complexities inherent in the understanding of the concept—industry—makes necessary great divisions and subdivisions of knowledge and technique. Small worlds have grown to feed the needs of industry. Banking institutions, raw material markets, constant scientific research efforts, expert transportation, technical training centers, great purchasing concerns, gifted leadership in management, new leadership for guidance of mass labor and skilled labor, organizations to study safety hazards, factories to supply safety shoes, goggles, masks; and always—nurses and doctors to meet the human needs. Nurses and doctors must seek to accomplish their special technical task expertly, but always also seek to understand their obligations to the interests of industry as a whole; to develop tact; to adhere to policy; and to seek ways and means of bringing their special skills to serve the actual practical needs of industry.

The productivity of the individual worker, and the increasing complexity of power machinery have forced management to evaluate all factors that contribute or detract from the precision of the human being in the performance of his specific task. Industrial machine efficiency now demands the utmost of human efficiency. The psychologist, C. A. Drake, last fall reported that only 15 persons among 100 applicants possessed sufficient perceptual ability for certain inspection jobs. And yet, taken as a whole, general aptitude tests are just beginning to form part of the battery of tests used in considering applicants in industry.

Dr. Stuart Meek, of the Chrysler Corporation, in speaking of safe placement promotion by industrial physicians, emphasizes the need of understanding thoroughly the nature of all occupations carried out; and he also stresses the relationship between production and placement—in other words, recommending only those applicants who present the physical and mental attributes which enable them to produce efficiently.

Fig. 1.—Phases of Industrial Development

Three phases in the development of modern industry. Adapted from comments in *Eye Hazards in Industrial Occupations* by Resnick and Carris.

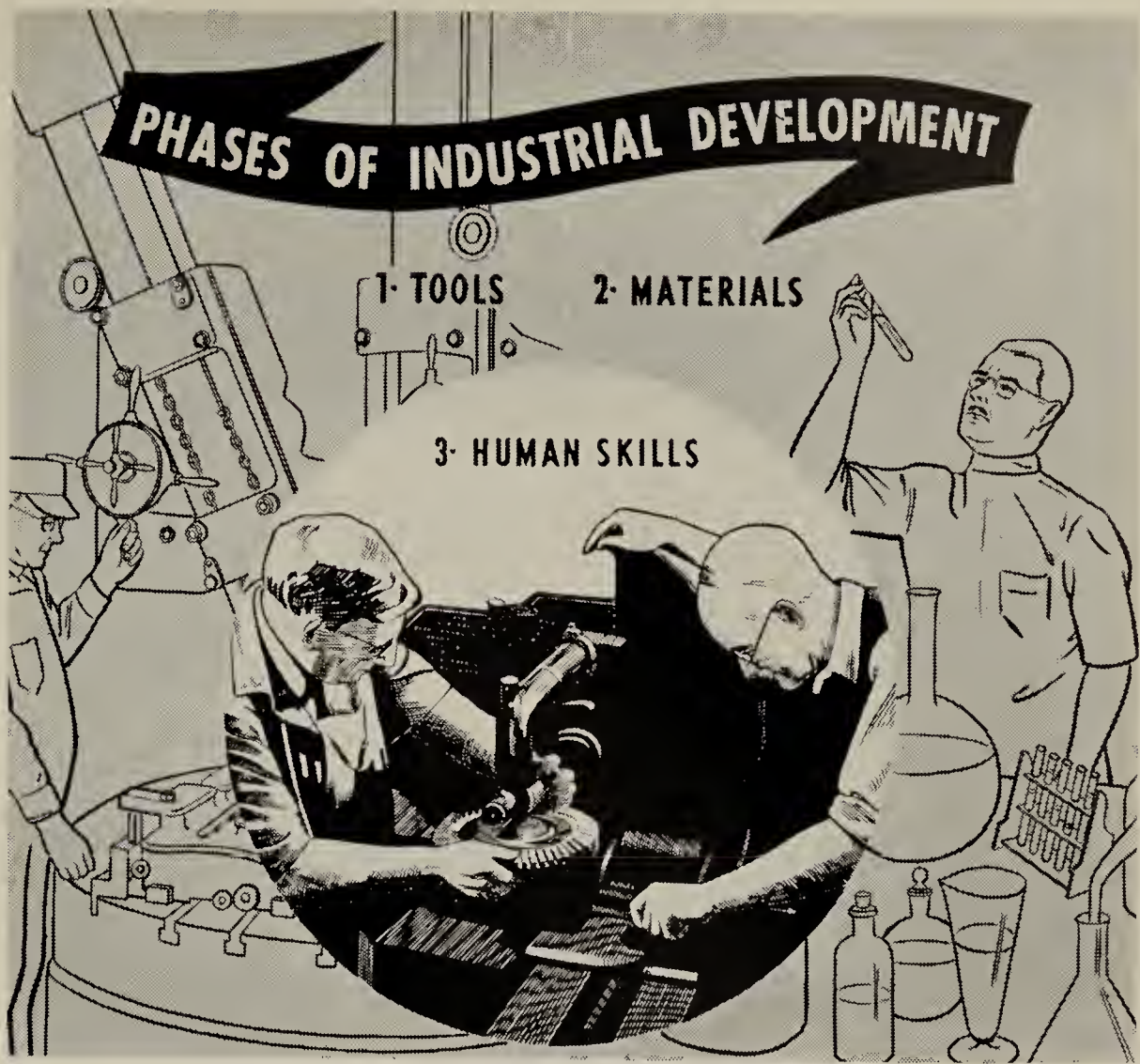


Fig. 2.—Far Vision
Near Vision

Typical differences in the circumstances requiring critical vision in industry; difference in the distances of vision required of a crane operator and a looper in a hosiery mill.

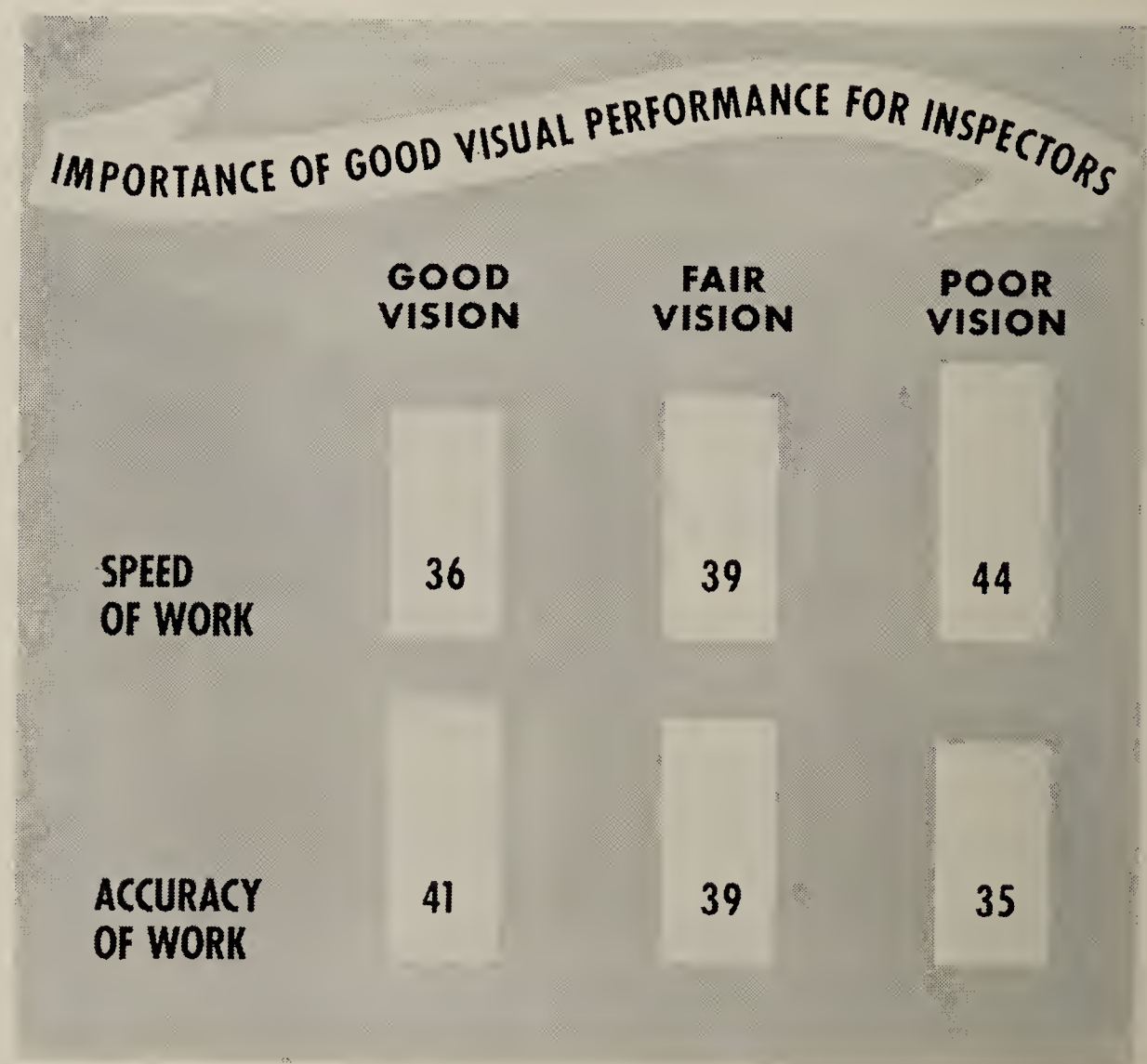


Fig. 3.—Visual Defects in Industry

Percentages of individuals in manufacturing industries who fail on various visual performance tests. Figures in black represent the proportions of failures on the various tests among the same group of workmen. Based on 16,332 examinations in various industries in the Calumet area.

Fig. 4.—The Importance of Good Visual Performance for Inspectors

Relative speed and accuracy of work done by tin plate inspectors differing in visual performance characteristics. "Good Vision," "Fair Vision," and "Poor Vision" are determined by the number of visual performance tests failed by each inspector. The vertical white bars in the upper level indicate the relative amount of tin plate inspected per unit time. The white bars in the lower level indicate the relative accuracy (reciprocal of the number of mistakes) in sorting the tin plate. Those with poorer vision do more work but do it less accurately. Adapted from a co-operative study with Joseph Tiffin, Ph.D., Purdue University.



Eyesight and Industrial Efficiency

It is important to have this general background in order to understand why visual findings in physical examinations are now known to have a direct and often vitally important relationship to production and efficiency, as well as to health and safety. This brings us closer to the subject which, strictly speaking, is my special assignment—a discussion of what is meant by the phrase, “visual performance,” and how that ties into industry.

Eye examinations have to give much more detailed information about what a given pair of eyes can do to meet the requirements of a given job, than has been the practice in most instances. At one extreme there is the overhead crane operator who may have to drop a load on an exact spot at an exact moment, 150 feet from where he pulls the levers (see Figure 2). To do this with maximum safety and efficiency he has to have depth perception as well as good vision in each eye, and he also must have no major defect of muscle balance. At the other extreme is the girl at a looping machine in the hosiery industry, where her work has to be set at a distance of eight inches from her eyes. She has to have perfect binocular co-ordination, and ocular balance, in order to sustain a sharp focus for eight hours. The present routine of eye testing would never disclose whether the individuals concerned possessed the visual qualifications necessary for their particular jobs.

Definition of Terms

In the study of 16,332 individuals whose eyes we tested inside the gates of industry, we sought the following information: (1) acuity; (2) acuity uncorrected; (3) defects of stereopsis; (4) muscle imbalances; and (5) color deficiencies (see Figure 3).

Let me define the terms used in this study of the five major defect groups mentioned. *Acuity* is the sharpness of seeing (unaided by glasses) and is recorded by the designations of the Snellen Chart or its equivalent. Most generally this test is given with the wall chart set at a distance of 20 feet, each eye being tested separately, with the other eye covered. Actually, no one goes around at his work that way and, since the sharpness of vision of each eye separately *can* be tested with both eyes open, a record of this

binocular (with both eyes) acuity is essential. *Acuity uncorrected* means the sharpness of vision of a group in which everyone wearing glasses at the time is tested with his glasses, and the defects listed are those found still to exist in spite of correction. This, of course, shows us the actual percentage of individuals working in a plant with 20/40 vision or less (the dividing line chosen between normal and defective). On this basis it can be determined how many men in each of the individual plants have serious acuity defects. By *stereopsis* we mean the ability of judging distance. It requires the use of both eyes together. A one-eyed man has no sense of a third dimension, or, as we say, no depth perception. There is always a risk when a one-eyed man lands a plane or drops hot metal on a certain spot, or drives a car. Lack of stereopsis is a serious defect in a crane operator or tractor driver or man feeding into a machine, but not necessarily in a manual laborer or a clerk. *Muscle imbalance*—each eye can see sharply, and yet, unless that pair of eyes is co-ordinated perfectly (just as a stereoscopic camera is), there can be not only blurring, headaches, fatigue and loss of depth perception, but, if extreme, diplopia or double vision. For jobs such as aviators, inspectors, assorters and workers in the hosiery industry, marked defects in muscle balance not only produce tremendous strain and even a breakdown of an operator's visual co-ordination, but they are definitely correlated with inaccuracy and inefficiency of production. *Color Blindness*, or, as we prefer to designate it, *Color Deficiency*, is also important, especially for certain jobs—trainmen using red and green signals, anyone using colored signals, people matching colors, electricians following varicolored wires, etc.—but not necessarily for all occupations.

The careful choice of inspectors, clerks and individuals doing special types of close work has become an integral part of guarding standards of efficiency production and accuracy in industry. In the hosiery industry, the girls with *the greatest speed* have the *poorest vision* (they do not see the defects), while those who are *most accurate* are those with the *best visual performance* (see Figure 4). In the statistical study of the vision of girls doing clerical tasks, where work and waste vary directly with degree of perfection of visual performance, the most important defect often is one of muscle balance (see Figure 5).

Fig. 5.—The Importance of Good Visual Performance for Clerical Work

Relative speed and accuracy of work done by clerks in three jobs involved in modern mechanical accounting systems: The vertical white columns resting on the desks represent the relative amounts of work accomplished. Adapted from a co-operative study with Joseph Tiffin, Ph.D., Purdue University.

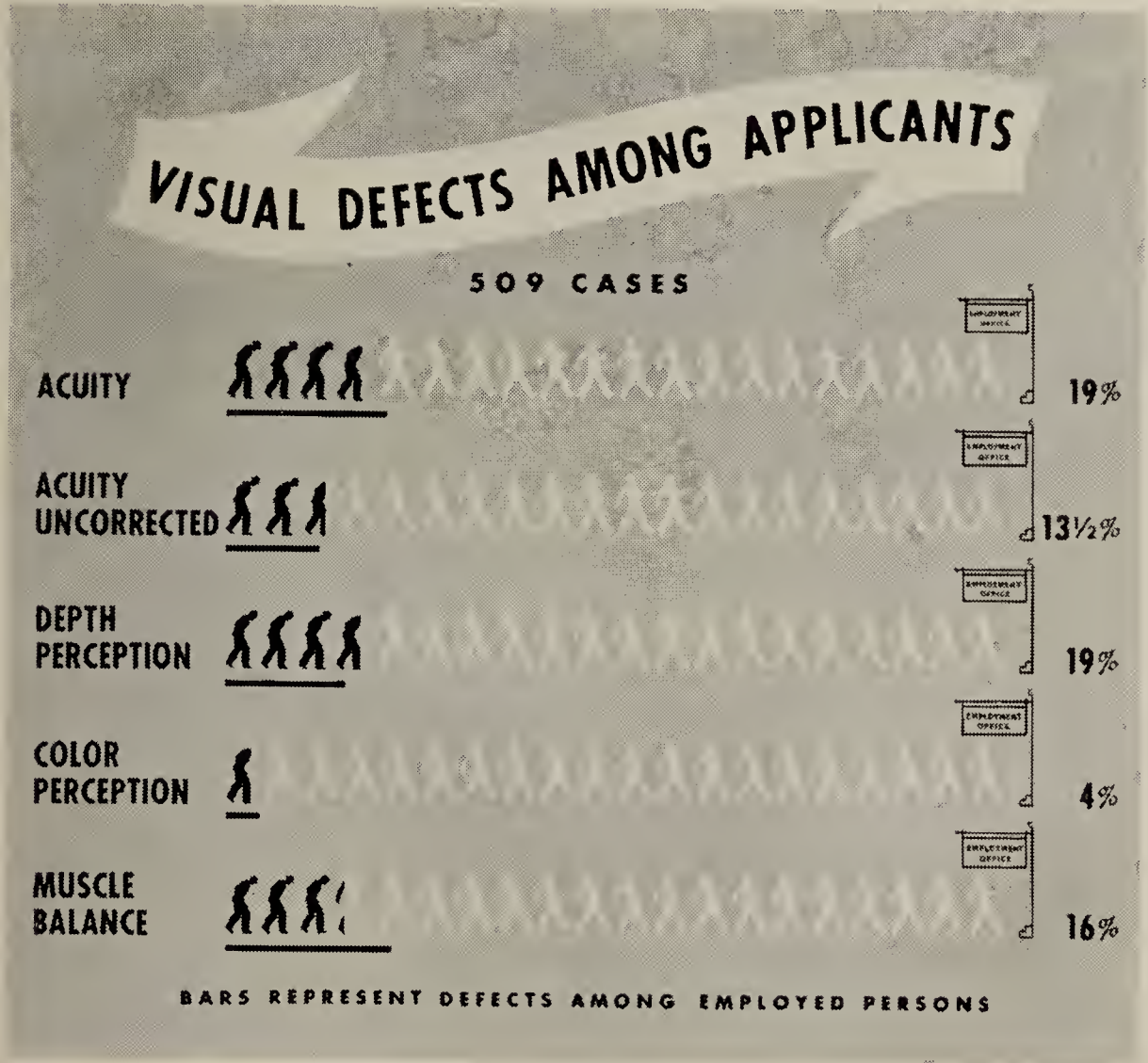
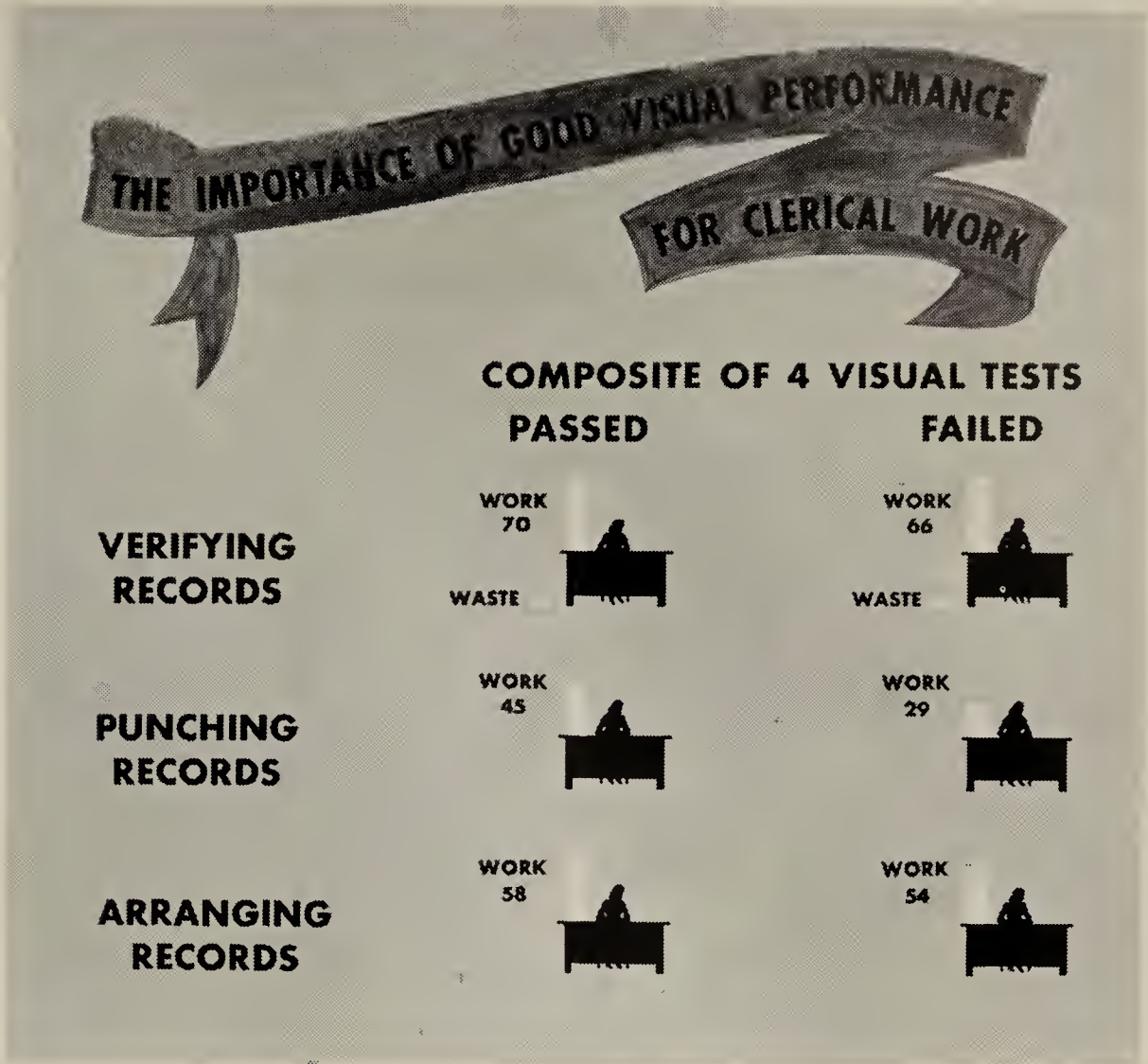


Fig. 6.—Visual Performance of Lost Time Accident Cases
Percentage of failures on various visual performance tests of a group of workers who had lost time from accidents in 1939 in comparison with corresponding percentages of a cross section of all workers in the same plant.

VISUAL PERFORMANCE OF LOST TIME ACCIDENT CASES IN 1939. *Versus* - VISUAL PERFORMANCE AVERAGE OF THE PLANT

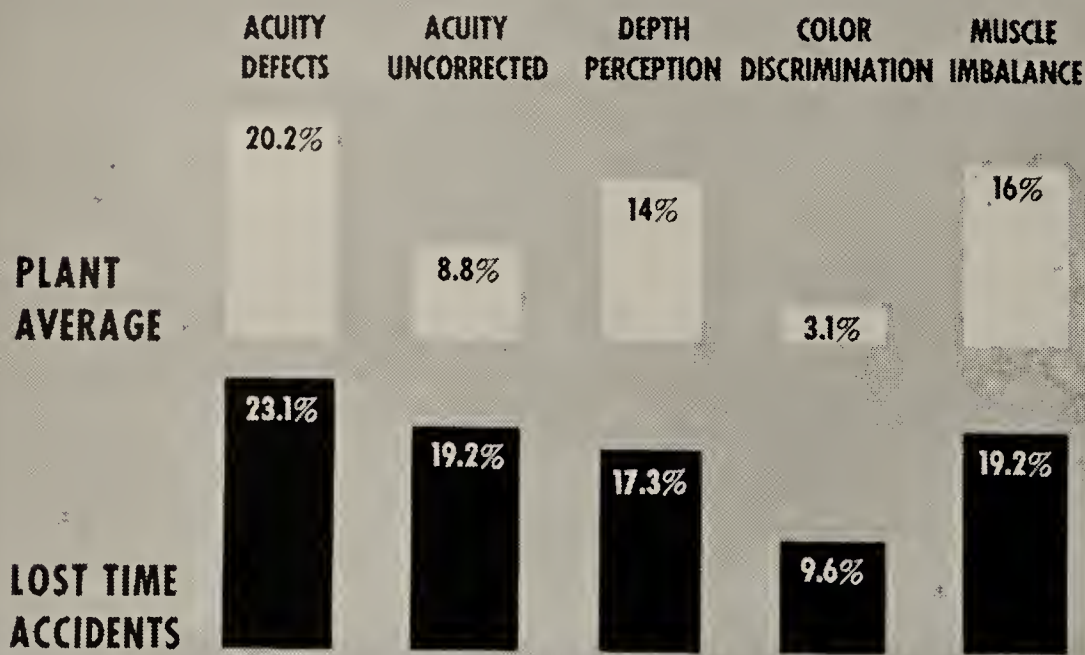


Fig. 7.—Visual Defects Among Applicants

Proportion of individuals among applicants for jobs in industry who fail on various visual performance tests. The black figures represent the percentages of individuals in the same group who failed the tests. The black bars under these figures indicate the percentages of those already employed in industry on these same tests, as shown in Fig. 3.

Practical Program

A modern program and technique of examining eyes in industry, which are based on evaluating visual acuity, depth perception, muscle balance and color, contribute a great advance in exactness of data for safety records. The man on the ground whose shoulder is broken by a crane load dropped on him is studied not only in regard to where *he was* and *what doing*, but instead the man at the levers of the crane is studied. A notation of such factors makes accident records much more complete and valuable.

A rather too vivid example of this can be cited in the case of a private patient who came for eye examination. He had normal vision but no depth perception. I asked, "What is your job?" He said, "Well, I've been grounded. I used to operate a machine." "Have you had any accidents?" I asked. "Only to get a piece of steel in my eye," was the answer. Upon raising the question of whether he had had an accident in feeding a machine and misjudging distance, he pulled his left hand out of his pocket—four fingers were gone!

An eye health program that considers these four factors contributes a new item in the determination of merit ratings and promotions where qualifications now include physical aptitudes. It also contributes a saving of dollars and cents in types of work involving inspecting and assorting. As has been previously mentioned, there is a direct statistical correlation between perfect vision and accuracy. It contributes to the size of the pay envelope in industries where piece work is done. Further, an eye health program considering the four factors enumerated, contributes information on which to base rehabilitation needs in setting up the great training programs for national defense. Neither the government nor a private organization will want to finance the training of an individual, who, when trained, will be sure to be rejected by industry. (See Figure 6, which shows the percentages of defects in applicants before whom loom the new standards of visual performance.)

Most dramatic, perhaps, are the results of a special study just completed. Analyzing the visual defects in 80 per cent of the men involved in lost-time accidents during 1939, in a very large plant,

we have found a direct correlation in all five visual defects which make up visual performance (see Figure 7). For example, the plant average of uncorrected acuity is 8.8 per cent, while the uncorrected acuity in the lost-time accident cases was 19.2 per cent—more than double! Color vision deficiency was 3.1 per cent in the plant as a whole, and 9.16 per cent in the lost-time accident cases.

Previous attempts to study vision and its relationship to accidents have failed for two reasons: first, because accident records have not given the necessary data; and secondly, because the acuity alone (and that taken only for each eye separately) was known and recorded in evaluating that individual's visual performance. Having searched the literature for a comparable study prior to this investigation without success, we feel very proud of being able to contribute this particular project.

Method of Analyzing Visual Performance

Now, just exactly how do we analyze an individual's visual performance, which includes acuity, depth perception, color sense, and muscle balance; and, how do we use these findings to determine who can be a crane operator or a looper or a stenographer or a machinist? We have discarded the Snellen wall chart as inadequate, even for a visual acuity test alone, because of poor lighting, memorizing, and so on. We must have a vision test of each eye separately, but with both eyes open. For this we should use a binocular instrument. Such an instrument already exists for the study of visual aptitudes in students within the grades and in colleges. The complexity of its record forms, the far too academic and impractical interpretations made of the findings, and the need for additional special tests and mechanical improvements, made it imperative to design a new instrument for specific use in industry. This has been undertaken by one of our largest optical manufacturers. Such an instrument with a complete program for its use in industry will be available in the near future—as soon as it has been checked and meets in every way the scientific requirements. And, may I say here, that it was conclusively demonstrated that such a visual testing program must be made under the control and guidance of the medical department, or medical consultants of industry—both

to insure its accuracy and continued practicability, and to prevent commercial exploitation of so important a part of the great programs for industrial safety and efficiency.

The battery of tests include tests for stereopsis, color sense, and muscle balance, as well as for visual acuity. It takes an average of about three minutes to check an individual for these four basic visual aptitudes. Simplicity, clarity, and a smooth running technique of handling the whole procedure make it a practical and accurate method. In some industries the tests are run, or can be run, by nurses trained to give them, or by an employment department staff so trained, whose function is merely to secure the data. The personnel departments, in consultation with the medical director or, best of all, the company ophthalmologist, however, must work out the visual standards practical and valuable to the specific jobs under consideration. Ophthalmologists serving industry need to assume a greater responsibility to industry than merely to remove foreign bodies, sew up torn lids, or operate on injured eyes, important as these may be. They must equip themselves so that they can consult with management, personnel directors, safety directors, employment officials, heads of training departments, and they must be informed on the nature of each job and its specific requirements. Only after such a solid foundation of complete factual knowledge can we, as ophthalmologists, advise industry of what eye standards to set, advise them on the interpretation of defect findings, and establish the principles of "Eyes for the Job."

Rehabilitation Programs for Those with Visual Defects

The rehabilitation program for employees found with defective vision in a survey of a given plant, and for applicants seeking training for skilled jobs in industry, is still another great field of allied service. And here it would seem pertinent to mention that rehabilitation does not confine itself to getting an employee to buy a pair of glasses or to have a cataract operation performed. Rehabilitation, as well as correction before employment, of existing defects has tremendous possibilities in training programs. You can train personnel to acquire certain visual aptitudes, just as training departments have been used to train other aptitudes.

Muscle imbalances and often minor defects of stereopsis can be

corrected by orthoptic training. This can best be illustrated by citing a case—a young chap who was a crane operator. He came to us complaining of headaches and other troubles. He had perfect vision but a marked muscle imbalance. We made provisions in our office for him to obtain orthoptic training, which was completed on the day before Christmas. He said, “The fellows working under me do not know it, but they have a good reason to celebrate. When I started training here, I could not tell within ten feet of how close I was to the spot where I was to drop my load except as I judged by pillars, stationary machinery, windows, etc. Now I can drop my load on a dime without any such assistance.”

Whenever this story is told to safety directors, their hair rises on their heads, just as yours and mine would if we were flying with a pilot who could not judge how far above a high tension wire he was, while landing his plane.

Eliminating Visual Handicaps as a Bottleneck in Industrial Efficiency

Now, one more vital fact as yet just beginning to become a factor in management's comprehension of its own bottle-necks. If the efficiency of the present employed force of skilled labor could be increased 3 to 5 per cent, it would cancel the present lack of skilled labor or the likelihood of such a shortage occurring. Job training inside industry, plus the proper type of physical examination (including visual performance as well as other aptitude tests), would accomplish this 3 to 5 per cent increase in efficiency. It would do this without any of the personnel problems arising when it is necessary to displace men now at work, causing grievances and restlessness and strikes. Machine power in industry has been geared to about 90 per cent of its possible efficiency, but to date, human power has been geared only to 50 or 60 per cent of its possible efficiency.

Summary

In closing, may I say that it is my hope that you will carry away with you the following specific concepts:

1. Scientific but practical eye examinations for individual purposes must include testing the entire range of visual functions.

2. The data secured from such an examination is basic to the proper placing of employees, to their efficiency and level of production, and to their safety.

3. Medical, and especially ophthalmological, consultants to industry have only begun to see the potentialities of service not only possible and needed, but soon, I believe, to be demanded of them by management.

4. A program such as discussed is both preventive of trouble and analytical of particular job problems, but also it forms the real basis of rehabilitation objectives inside industry.

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The General Agency's Opportunity for Sight Conservation Among Older People*

Margaret W. Wagner†

IN the following article the author describes the necessity for better understanding by the ophthalmologist of the older patient, and the part the case worker can play in establishing such an understanding.

IT IS a relatively new experience in the case work field to approach the old age group and to attempt to identify and evaluate their problems. So meager is our knowledge concerning the aging process that we are unable to differentiate between normal senescence and pathological old age. Dr. George Lawton, Columbia University, points out that there have been no criteria developed for the adjustment of old people because as yet we do not know the meaning nor what to expect of normal old age. Old age is looked upon as an affliction. He wisely states that "we should offer old age not veneration nor indifference nor pity, which is sentimentality; we should offer understanding based on facts."

This paper offers such conclusions as have been reached as a result of our experience at The Benjamin Rose Institute in case work with the aged over a seven-year period.

The Benjamin Rose Institute in Cleveland is a private foundation, established in 1909. Its primary purpose is to grant assistance in the form of pensions to women over sixty and men over sixty-five years of age. They are encouraged to remain in their own homes insofar as possible and are helped to maintain a standard of living compatible with their earlier associations. A secondary purpose is to grant funds to provide medical care for crippled children, but

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as the needs of the aged have increased, this has greatly overshadowed its work with crippled children.

The group discussed here represents persons between the ages of sixty and ninety years, the majority of whom are educated and have enjoyed a fairly comfortable, secure life. They represent the cross-section of the American urban middle class and eliminate the foreign group. The majority are women, most of whom have been protected in the home, but many have been employed in a business or professional capacity. These old people carry over many of the concepts and patterns of past generations. They have confidence in the old-fashioned physician, the doctor who looked at the tongue, applied the stethoscope over layers of clothing, and who was satisfied with a few expected questions. The theory seemed to be that "what you do not know won't hurt you." By this same token these individuals, conscious of diminishing eyesight, go to the nearest optometrist to buy glasses, which seem to improve their vision. The long examination by the ophthalmologist seems tedious and the use of drops may be considered dangerous.

The Benjamin Rose Institute provides medical care for its 350 beneficiaries and requests a complete physical examination of all new applicants. Physicians who are appointed members of the Medical Advisory Committee serve in this capacity and continue to render service when requested. The patients presenting eye symptoms are sent to the private office of an ophthalmologist. We have been most fortunate in having on our Advisory Committee a very able ophthalmologist who is interested in and sympathetic with old people. He utilizes medical treatment for incipient cataract, and in the great majority of cases where treatment has been started fairly early, growth has been retarded and vision improved so that few have required surgical treatment. From our experience, this should be avoided whenever possible. The patient of seventy years and over rarely regains his former mental and physical status after an operation. The long period of waiting before glasses can be fitted is a difficult and discouraging experience. During this interval the patient may become self-absorbed, intensely worried, and frequently gratifies self-pity by assuming a helpless attitude in order to gain attention. This is poor preparation for the effort which the adjustment to the first glasses will demand and the re-

sults are usually disappointing, for the patient may have expected a miraculous cure. In some instances, even where the results have been successful, the patient has had to be convinced. Mrs. Merry was one of these.

Old Mrs. Merry had an excellent result from the operation for cataract, but after getting her glasses she insisted that she could not see a thing. She was a jolly old soul, with Irish wit, and the interviews were usually lightened by some gaiety. One day she remarked to the case worker, "Why do you put that pink stuff on your nails?" The case worker laughingly parried, "I thought you couldn't see." Her sense of humor rescued the old lady from attempting to deny it, and she began consciously to accept the fact that she could see and to utilize such sight as she had.

In working with the aged one must be continually on the alert to catch vague complaints of diminishing vision and to question the result of any examination except that performed by a competent ophthalmologist. The average practising physician may fail to diagnose glaucoma, with possible disastrous results, or a beginning cataract may go undiagnosed until it is too late for medical or preventive treatment.

Miss Wales, a single woman of sixty-nine years, physically well preserved, sought medical advice for eye distress. A diagnosis of glaucoma was not made, but the patient was treated for several months. She suspected cataract, but being a reticent person, she did not discuss her fears. She had not adjusted to dependency and now she thought she was facing blindness. She withdrew from her social contacts; gave up her hobbies, which were reading and handwork; and faced the dark future with idle hands. As her general health suffered, effort was first directed by the case worker toward more adequate medical care and a consultation was requested and treatment plan worked out between the ophthalmologist and the former physician.

The diagnosis of glaucoma was made and the patient remained under the care of the ophthalmologist over a period of years. When first seen, in March, 1934, the tension in the left eye was 66, and the field of vision reduced 60 per cent, and the vision reduced to 30 per cent of normal. By January, 1935, the vision of the right eye was normal and the vision of the left eye 90 per cent. The patient was then allowed limited use

of her eyes. For the next two years she was examined every two months, and since 1937, every six months, as the tension was normal and vision remained the same.

By 1940 Miss Wales has become a bed patient, as the result of an acute progressive arthritis of rheumatoid type. The eyesight has kept pace with a failing body and failing mentality and will serve her to the end of her life.

In seeking to identify the cause of the intensified emotional reactions of the older person, both the psychogenic and organic elements have to be considered. Usually there is an inter-relationship between physical deterioration and personality difficulties which makes them inseparable. Diminished competence, forgetfulness, and mental confusion, due to arteriosclerosis, increase the feeling of inadequacy and insecurity. The cause of the ensuing discomfort is usually projected by the patient onto external factors, and reality becomes submerged in the emotional flow of rationalization. It is an accepted truth that older people enjoy physical comforts. An armchair and open fireplace become synonymous for comfortable old age, but just as much or more they demand mental comfort. Reality, which may be uncomfortable, is evaded and rationalization is accepted as a means of creating an acceptable situation. Therefore, without information concerning the personality difficulties of the patient and some of the emotional factors involved, the ophthalmologist may have difficulty in meeting the resistance of the patient to medical treatment.

Miss Carr, a seventy-nine-year-old single woman, had led an active but rather inconsequential life. She assumes a hyper-independent attitude and, although mentally confused and lonely, she is unwilling to accept any suggestion which might improve her situation. Her life is given over to searching for suitable living quarters, to which she moves, remaining only long enough to get acquainted, when she again starts looking for another place. The worker has given up any attempt to break this cycle, which appears to give satisfaction and for which no constructive substitute has been found. Her only other source of pleasure is reading.

When confronted with the possibility of cataract for which treatment would have to be recommended, Miss Carr refused to submit to the use of drops in the examination. She became excited and dictatorial. Her emotional reaction to the simple

procedure was out of all proportion to the situation. Her explanation was that drops had caused blindness. The case worker's interpretation was that this impulse sprang from a sense of danger. It was a defense reaction against an intolerable situation, of which momentarily the doctor had given her a glimpse. Her unconscious protective mechanism then shut out the threat of future insecurity. When the case worker attempted to discuss it with her, Miss Carr assumed a blank expression. She explained that her eyesight was adequate to serve her needs.

In this situation the case worker questions whether any attempt to break down the patient's resistance is justified. If the patient reaches a point where she can no longer see, she may then be willing to submit to an operation.

It should be the responsibility of the medical social case worker to treat the emotional factors which may obstruct the successful medical treatment of the patient. By the co-operative effort of both doctor and case worker and the pooling of the social factors and physical findings, the best results can be achieved.

In spite of the fact that Mrs. Dalton is a capable, intelligent person, she attempted to deny the possibility of cataract. Mrs. Dalton, a widow, aged sixty-seven, had enjoyed more than average advantages. She was active and self-reliant, but had found it difficult to face dependency. Her husband, a successful professional man, had been an invalid many years before his death and the greatest part of his fortune was exhausted providing for him. Mrs. Dalton's unsuccessful attempts at the age of sixty-five to support herself had been a destructive experience. She had found it difficult, if not impossible, to attribute her failure to the decreasing physical and mental capacity of age. She fought against dependency and the admission of any disability which accompanies old age.

The case worker's plan, after a pension had been granted, was to allow her maximum freedom in managing her own affairs. It did not, therefore, come to her attention that Mrs. Dalton was worried about failing vision, which she blamed on her old glasses. A radio announcement by a chain drug store, advertising free examinations if glasses were purchased, caught Mrs. Dalton's attention. She was given a brief examination and bluntly told she had cataracts. The shock was acute, the situation untenable. Mrs. Dalton then attempted a process of rationalization which would allow her to deny that she had

cataracts. She later explained her mental processes to the case worker something as follows: "That man must be wrong (but was he?); I cannot go blind, I could not live (but others do). If I tell my case worker she'll send me to a specialist and then I would really know (I would rather not know). Can I stand this uncertainty (but I cannot stand the truth)?"

Mrs. Dalton was facing not cataract but blindness. Dependency, whereby she had lost social status, accompanied by decreasing mental and physical competence, had not yet been accepted. The burden of blindness was intolerable. She stated that she finally told the case worker her fears when she realized that she was to become a greater charge, for when blindness set in she would be entirely dependent upon the agency. At no time during this interval did the patient question but that cataract and blindness were synonymous. She accepted the suggestion to be examined by an ophthalmologist, but her state of agitation on presenting herself was acute. The doctor was prepared for the patient by the medical social case worker, who informed him of her attitude and her earlier experience in order that he could deal sympathetically and intelligently with her concern. The need for a careful interpretation with the diagnosis was clearly indicated.

She was examined in February, 1933, and the diagnosis of cataract was substantiated. She has been under treatment intermittently since that time. She was first given a weak solution of dionin, and refracted. At that time her vision with proper correction was better than normal in each eye. After using dionin for a period of time, glasses were prescribed. Upon obtaining glasses the patient was convinced that she was not going to become blind and that she could use her eyes comfortably. She continued using dionin intermittently until 1936, when she was again refracted and her vision was found to remain slightly better than normal. The last examination was on December 4, 1939. At that time her vision was better than normal in each eye. The cataract had not progressed and the patient is convinced that if she continues to follow medical treatment she will never become blind.

Confidence established between the patient and doctor in this instance resulted in co-operation by the patient and the satisfactory carrying through of preventive treatment, which was made more possible by the joint effort of the doctor and case worker.

An ophthalmologist frequently has difficulty in deciding whether or not a patient should be told he has cataract. An interpretation

from the social case worker, relating to the mental and emotional state of the patient, will be a factor in helping the doctor to decide. The doctor can expect better co-operation from the patient in carrying out medical treatment if he has been told. If medical treatment is not indicated and the patient must wait until the cataract is ready for operation, it saves the patient a great deal of distress and worry if he is informed and encouraged as to the future outcome. Many patients remain comfortably in ignorance while being kept under observation and given medical treatment.

The examples given should not leave the impression that the majority of patients conscious of diminishing eyesight do not disclose their concern because of fear based on ignorance. We do not know whether a similar age group with financial means turns more frequently to the ophthalmologist than has been our experience. In the majority of our cases under medical treatment for cataract, the growth has been controlled so that few have come to the point of operation. Prevention, however, is dependent upon early discovery. It, therefore, appears to be just as necessary in the prevention of blindness with the aged to consider a broad educational program as it is in combating cancer or syphilis. The same objective is apparent, the overcoming of fear and the necessity for securing competent medical advice early.

The pain of acute glaucoma, the distress accompanying acute conjunctivitis and ulcer of the cornea, force the patient to consult the doctor. The problem of treatment of chronic glaucoma, however, hinges on correct diagnosis early and this is a problem for the medical profession. The case worker should, however, be on the alert for the seemingly minor complaints which might indicate a chronic glaucoma. In treating older people for diseases of the eye, good hygiene, proper diet, rest, and elimination of the toxic conditions prevail, as in all age groups. They appear accentuated, however, in some areas. Many older people are particularly susceptible to food fads. A high percentage known to The Benjamin Rose Institute live alone, which aggravates the tendency to eat improperly. The idea is still very prevalent that the old do not need the nourishing food required by the younger person and that meat and other proteins are harmful. Vegetables may be substituted by food which is easier to prepare. The loss of teeth in older people,

resulting in improper occlusion, may directly affect nutrition and assimilation. Constipation may result. Medical science sees a relationship between cataract and diet. The present practice of giving vitamins or liver extract as a substitute for an adequate diet is an expensive procedure.

Any treatment, particularly that which involves the co-operation of the patient, to be successful, must take into account the emotional factors related to the threat of diminishing eyesight. In one area one may become immersed in psychiatric interpretations which are complicated and difficult, but in another area it is possible to see that by some very simple device good results may be obtained.

One specific problem which repeats itself is the exhausting and depressing effect on the patient of long waiting in the confusion of clinics or dispensaries. This is poor preparation for the examination which is to follow. If this is conducted in a room with other people, the tired, apprehensive, disturbed patient finds it more difficult than usual to hear or even to see and is unable to co-operate as desired. The examining physician may be hurried and his rapid fire questions are not given the right answers. This same situation may hold true in the private office of the ophthalmologist who has an active practice. The long period of waiting necessary for eye examinations seems to be a burden which modern society has to bear at all ages, but with the older person it should be limited insofar as possible. Many of our patients have told us of their increasing distress as their imaginations took flight while waiting in an office for the verdict. It is a common occurrence for these patients to explain their long wait by saying that because they were old they were not so important and, therefore, younger patients were allowed to precede them. Diminishing eyesight or blindness is to the old person an additional threat to security and may mean the abandonment of their pursuit for happiness. The fear of uselessness, expressed to the older person as rejection, engenders hostility. When the doctor sees his patient, the combination of these emotions and the reality which he presents may result in an emotional reaction which he is unable to understand.

Mrs. Black's failure to benefit from treatment for cataract can be related to her total failure in meeting the impact of the aging process. She expresses mental conflicts and a sense of

insecurity, which keeps her in an emotional state and blocks constructive help. Mrs. Black, now sixty-five, at one time held a responsible job and was successful in business. Her life had been relatively secure. Her gratitude and relief when granted the maximum pension of \$50 a month seemed beyond expression, but in the same breath she explained her inability to live on so small an amount. She insists upon living in a high class apartment where rent absorbs too great a proportion of her income and leaves an insufficient amount to cover other expenses. She has met the situation so far by earning a little money and selling her silver and antiques, but she is facing the end of this resource. She constantly attempts to justify her existence with the case worker on the basis that she is an exception and that these luxuries are necessities. Mrs. Black evades the issue, and when faced with facts she immediately takes flight. If in the office she rises quickly from her chair and rushes out of the door. If in her home, where she cannot escape, her expression is that of a hunted animal; she wrings her hands and cries. She has built up a state of emotional anxiety through loss of money and failure to maintain the position to which she was accustomed, which leaves her in a condition of frustration. Her solution is somehow to muddle through. She dreads old age, its threatened loneliness and physical discomfort, and tries to blind herself to the future.

This patient was referred to the ophthalmologist in May, 1939, although she stated she preferred to go to an optometrist who would just give her proper glasses. A diagnosis of fairly well-developed cataract in the right eye and an incipient cataract in the left eye was made. There was a fairly high myopia in the right eye, while the left eye was still hyperopic. For this reason glasses were not prescribed, but medical treatment was instituted. The patient did not co-operate in the use of dionin, objecting to the discomfort, although transitory. Even though her use of dionin was infrequent, the cataracts did not progress. Because of her insistence glasses were finally prescribed, with the myopic lens for the right eye and the hyperopic lens in the other eye. This correction required an adjustment on the part of the patient which she finds difficult. In spite of the fact that with her correction she has normal vision, she complains that she cannot see and it is her habit to go about at home with one eye closed. In this situation the patient's fear concerning her eyes, her confusion and inability to accept any part of becoming old, makes the possibility of adjustment to her eyes very questionable.

At the time of her last visit to the ophthalmologist for a

re-check she resented a long wait, objected to a draft from the open window, accused the doctor of slighting her, and finally demanded her coat and hat, saying she would leave. She was restrained and examined by the doctor, but was not convinced that her vision had been improved.

Because Mrs. Black is relatively young and the physical findings are negative, the difficulty would seem to be functional rather than organic. The possibility of her being helped by the case worker is now frustrated because of the client's feeling of guilt regarding financial matters.

From our experience there are some relatively simple procedures which, if followed in a clinic or office, would have a very beneficial effect on the older patient. The clinic secretary or social worker in the dispensary, or receptionist in the doctor's office, should be aware of the older patient and pay particular attention to him. In the hurry to get to the doctor's office and because he is excited, frequently the patient will go with little or no breakfast. The secretary might step up to old Mrs. Jones and say how sorry she was to keep her waiting and give some minor explanation. She might explain that there is to be a long wait and suggest that the patient step out for a cup of coffee or a bite to eat. The appreciation of such friendliness and attention will wipe out the irritation, for old people respond so quickly to attention and consideration. When the patient is placed in the dark room with drops, an explanation of why he is placed there and how long it will be will eliminate much mental suffering which the patient goes through at such times.

Any program of prevention implies a program of education. The prevention of blindness and failing eyesight in the older person must come about through a broad educational effort, its purpose to inform the young as well as the old. Today the average layman is well versed in preventive measures for childhood diseases. He has a good understanding of hygiene and diet and is beginning to seek attention immediately should any symptom of cancer occur, but he still considers that second sight in old age is a blessing and a gift of God. There has been too passive an acceptance of the many preventable discomforts of old age, for advances in medical science have brought about an extension of life without preventing the accumulation of ills identified with the aging process. Arthritis,

heart disease, diabetes and other degenerative diseases are gaining wide attention, yet little has been written or is available for lay consumption on the subject of diseases affecting the eye. Failing vision is accepted as part of the burden of growing old. A person who grew up with oil lamps and gas jets is still satisfied to use 40-watt bulbs and to struggle with improperly fitted glasses.

The case worker, in dealing with the problems relating to diseases of the eye, finds herself confronted by difficulties presented by both the older patient and the medical profession. The patient is unaware that a competent ophthalmologist may be able to conserve failing sight; and the physician, on the other hand, needs to know and understand more of the emotional factors involved in dealing with problems of the aged. Older people are susceptible to advertisements for patent medicines. They are also an easy prey for quacks and faddists. They succumb to advertisements of optometry and are satisfied with the temporary improvement offered by increasing the magnifying properties of the lens without discovering the cause of the difficulty. Because they do not know, fear sets up a barrier against proper medical care, and as long as the public believes that cataract means blindness this fear will persist. Serious effort should be made to combat these fears by the educational process.

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Mental Health for Sight-Saving Class Pupils

Ingeborg Nystrom

MISS NYSTROM discusses the various factors in school and at home which can bring about a state of mental health in sight-saving class pupils whose psychological problems may be somewhat intensified by their visual handicap.

A GREAT deal has been written about how to acquire a wholesome personality, how to be well liked, how to bring the proverbial beaten path to one's door. "There is considerable evidence that personality traits are developed gradually as acquired characteristics which eventually become habitual and an integral part of individuality. The different situations to which the child is exposed set up patterns of response, and if the same patterns are continually repeated they are apt to become permanent," said Dr. Groves.¹ Since the child spends a great deal of his time in school, many of the "permanent patterns" that make up his personality are acquired there. Of the responsibility of the school in helping the child develop a wholesome personality, Stanley S. Gray² says: "The school should guide the formation of normal personalities and correct those which are already abnormal. It is vastly more important for the school to correct abnormal personalities than to teach the facts of geography and arithmetic. . . . It is the function of every teacher to understand the basic principles of personality therapy and the conditions which promote normality."

The Wholesome Personality

The wholesome personality has been defined as "an integration of both mind and body." In order to develop a well-balanced personality, it is important to keep physically and mentally fit; but each is difficult without the other. The following should contribute toward physical and mental health: (1) good habits of eat-

ing, sleeping, exercising, cleanliness, and relaxation; (2) learning to face one's difficulties and thus try to know one's limitations and abilities; (3) attempting to understand one's own behavior and emotions without becoming neurotic; and (4) acquiring a feeling of success in one's work and in one's contacts with others.

The road to mental health for children with defective vision does not differ essentially from this. The majority of them, as is true of the normally seeing, seem to adjust themselves satisfactorily; but occasionally they may need help in acquiring well-balanced personalities. According to Howard and Patry,³ "every individual is a potential risk and may become maladjusted at any time during the life span, depending upon the type and quantity of environmental stress or strain or load he has to carry in proportion to his armamentarium in the nature of the original stuff of his make-up and his acquired attitudes and habits." Since, as they say, "mental illness not due to some definite physical cause usually begins with unwholesome reaction to some difficulty or situation," early recognition of symptoms of such maladjustment and the use of preventive measures are important to keep the undesirable reaction from becoming a permanent personality trait. A program of prevention for children with defective vision should put emphasis upon positive ways of securing better adjustment of the child. In the words of Mrs. Hathaway,⁴ "the first step in all modern education is to find wherein the strength lies and to build upon that as a foundation."

The Sight-Saving Class, An Aid to Wholesome Personality

Placing the partially seeing child in a sight-saving class should be the desirable way to start him on the road to mental health if he has not been able to make the proper adjustment in the regular grade. The chief reason for establishing a sight-saving class in a school for normally seeing children is to help the child with defective vision achieve a wholesome personality by keeping him in a normal environment, in which his home is the center of his interests. Although he is enrolled in a sight-saving class, he is able to live at home and attend classes with his normally seeing friends; and thus, he tends to avoid developing the feeling that he is inferior or different. He is a member of his class (second, fourth, or twelfth

grade), as is true of any child, rather than of the sight-saving class. He is a graduate of the public high school, not of the sight-saving department.

Enrollment in a sight-saving class does not, of course, guarantee satisfactory adjustment of the child. Many factors must be considered—the child himself, the administration, the teachers, other children, and his home environment.

The Sight-Saving Class Pupil

His Health.—To promote stability of character in the sight-saving class pupil, his health should be safeguarded by every possible precaution, including care of the eyes. He should wear properly fitted glasses if he needs them, avoid eyestrain as much as possible, and do only as much close work as his particular eye condition warrants.

Good health, including eyes functioning as well as they are able, is an important aid to desirable adjustment; but in addition to this, the child should “develop a philosophy of living, a set of basic principles of conduct, an understanding of his own relation to the rest of society.”²

The Feeling of Success.—“Success is a wholesome tonic to the personality, increasing self-respect and self-reliance and producing interest which stimulates to further endeavor.”¹ Therefore, it is essential that the child be given worth-while tasks—tasks that he is able to do successfully. The sight-saving class makes it possible for the partially seeing child to keep pace successfully with the normally seeing boys and girls in school. He gains self-confidence, for small print is no longer a barrier for him in school accomplishment; and lessons are read to him when they are not available in large type. His papers are neatly typewritten, and he is proud to be able to do something which most of his normally seeing classmates would like to emulate. Such was the case with James.

James developed cataracts when he was in the third grade, but because of the long waiting list, he could not enter a sight-saving class. He was kept in the regular third grade for another term, could do none of the work, and naturally became a problem to the teacher. When he finally entered the sight-saving class, he was given work that he was able to do. At

first most of this had to be oral. He learned to use the typewriter and to read and write large manuscript writing. The teacher helped him find worth-while contributions for social studies, discussions in his regular grade classroom, and the teacher of that class said that usually James' report was the best given. His attitude had changed, and his happiness was very evident every time he was able to do a task successfully. He was almost as happy as when he returned to school after the Easter holidays, during which a needling operation was performed which resulted in 20/20 vision in one eye.

A Wholesome Attitude Toward His Disability.—Although success is necessary to a child's mental health, a sight-saving class pupil should be taught frankly to meet his disability in order to prevent compensatory behavior of an undesirable type. It may help him to know that everyone has difficulties to be overcome or to be accepted. He should learn in which activities he cannot be successful. Because a sight-saving class pupil does not wish to seem different, he often dislikes wearing glasses, reading books in large type, or using other material designed to conserve his vision. He should be led to understand the necessity of doing these things.

Helen, a very pretty girl in a junior high school sight-saving class, did not like to wear glasses outside of the sight-saving classroom, because she thought she was more attractive without them. The nurse and the teacher explained to her the necessity for wearing them, but Helen continued to take them off when she left the sight-saving classroom. The teacher discovered the reason for Helen's attitude and persuaded a social agency to assume the added expense of more becoming glasses. Then Helen became co-operative and was reconciled to wearing them during the entire day.

The child's eye condition should not be considered an excuse for results not commensurate with his ability. Praise, when deserved, usually stimulates him to further independent action.

Jane, a second-grade child with myopia, has an overly protective blind mother who insisted that her child should have a guide, although their home was only one block from the carline that would take Jane to school. When the mother talked with the other sight-saving class pupils and realized that a child younger than Jane made a street-car transfer every day

at a busy intersection, she consented to let Jane go home alone, provided another child would tell her when to get off the car.

The mother said, "I'll have someone meet Jane when she gets off the car, but be sure to telephone me when she leaves the school."

The teacher explained it would not be necessary to telephone, since the school dismissed at 3:15 every day. The father brought Jane the next morning to show her the way, but she went home alone. The next day she was praised for having gone home alone. She was pleased, and said that soon she would not need to have anyone meet her. That day she asked another child to get off the street-car with her and watch to see whether she could manage to get home alone. The next day she declared her independence, and now she travels back and forth without a guide.

Normal Expression of Emotions.—William H. Burnham⁵ says that the integrated personality is "characterized by normal expression of emotion and by control of emotions," and J. Stanley Gray² says that "unrestrained emotional habits are always detrimental to a personality. Emotion fills the blood with poisons and accelerates all the organic functions. Insanity is due to lack of emotional control more than to any other one cause." Boynton,⁶ in his book, *Psychology of Child Development*, states that normality of emotional reaction may be brought about by "avoidance of emotion-provoking situations, and the development of emotional control." The objective attitude, according to Burnham,⁵ is "the supreme means, next to the doing of one's own task, for integrating the personality and for preserving the mental health" and its "greatest value . . . is shown in control of emotion." The sight-saving class teacher may help her pupils develop an objective attitude toward situations that are likely to arouse unwholesome emotional reactions.

Paul, a fifth-grade boy who had hyperopic astigmatism, had developed the habit of losing his temper whenever he was unsuccessful in an attempted task. When he enrolled in a sight-saving class, he found it difficult to control his temper during the typewriting practice period. When he made an error, he jerked the paper out of the typewriter, crushed it with force, and threw it into the waste basket. The teacher led him to look objectively at his difficulty by helping him to see that it

was foolish to vent one's anger on a piece of paper, and that a wiser way would be to prevent mistakes by practicing persistently. One day, several weeks later, Paul had worked the wrong problems in arithmetic, and was about to hand his work in to his fifth grade teacher. The sight-saving class teacher noticed his mistake, and wondered what his reaction would be when she told him of it. Instead of tearing the paper into bits as he would have done earlier, he laughed and said, "That's a good joke on me! Guess I'll have to get busy on the right lesson." Praised for his self-control, he gradually learned to meet his difficulties with a sense of humor.

According to Howard and Patry,³ "some experience in both success and failure is necessary for mental health," and the teacher should help children "build an attitude of swallowing occasional defeat or failure as a matter of course." The majority of books about mental health give long lists of attitudes and habits that are conducive to mental well-being. Most frequently mentioned are regularity in habits of work, rest, and play; development of cultural interests; independent thinking; co-operation with others; and an understanding of oneself.

The Influence of Environment on Mental Health

How an individual feels about himself is one of the most important factors in his personality, but equally important is the relationship between the individual and his environment.

The Principal of the School.—The co-operation of the principal is essential if sight-saving class pupils are to be well adjusted in school. The principal should be conversant with all phases of the education of these pupils and should be kept informed of new developments in the field. He should understand the philosophy underlying sight-saving classes—that the child is considered a member of the regular grade class and should take part in all activities of that class by which he can profit without eyestrain; that the child is placed in a day school class so that he may have normal social contacts; that he should be taught to be as independent as his eye condition permits.

The Programs and Curriculum.—Frequently, the regular school programs and courses make it difficult for the sight-saving class pupil to fit in, and situations arise which have a negative influence

on his personality. In such cases the regular programs and courses should be adapted to his needs.

In the grades, flexible programs make it more difficult for the regular grade teacher to care for the sight-saving class child. It is trying for the teacher to have the sight-saving class child interrupt by coming in for language, when the music period has had to be extended. On the other hand, it is discouraging to the child if flexibility of program makes him miss classes.

Ellen, a sight-saving class pupil in the sixth grade, came tearfully from her regular grade classroom. "I had my social studies report ready, but I missed the class; so now I can't give it, because they begin something new tomorrow. They changed the program today because one of the supervisors is here. Yesterday I missed the arithmetic class, because the dental nurse was here." Arrangements were made whereby a regular grade child was given the responsibility of seeing that Ellen did not miss activities by which she could profit. With a little help, the former child soon was able to judge for which activities Ellen should be called. This was done only when the regular grade teacher made a temporary change in her program. Otherwise, Ellen was prompt and adhered closely to her program.

In junior and senior high school, the sight-saving class child is often unhappy because he is frequently excluded, because of his vision, from classes in which he is interested. If possible, the courses should be modified to allow children of low vision to participate.

Sometimes gymnasium courses are unsuited to the child with low vision. He is often left out of ball games because of his vision, and this tends to make him develop a sense of inferiority. Saturday morning classes in gymnasium and manual training may solve the problem to some extent, but it is preferable to have sight-saving class pupils take these courses with the normally seeing boys and girls. The Saturday morning work in manual training, however, is helpful in gaining admittance to regular manual training classes; and in the Saturday morning gymnasium class, the child with defective vision has an opportunity to learn to play the games from which his sight excludes him during the week.

In the senior high schools in Minneapolis, an applied industries course is offered for credit to all sight-saving class pupils, in lieu

of sewing, shop, and auto-mechanics. The course gives the student an opportunity to demonstrate that he can be useful in industry, and the feeling of self-confidence that this gives him is a valuable aid to his mental health.

Another way of modifying the curriculum to suit the needs of the child with defective vision, and thus help give him self-confidence, is to encourage him to take part in activities in which he can participate successfully—rhythm, music, dramatics, debate.

Kenneth, a shy high school student with progressive myopia, could not play ball because of his eye difficulty. He felt inferior and found his school work difficult. He was found to have special talent for music and achieved success through free private music lessons given by the sight-saving department. The Minnesota music teachers sponsored a contest; Kenneth tried out, and was chosen to be one of ten to play in a ten-piece ensemble under a well-known director. Kenneth's success carried over into his school work. He decided to be a concert pianist, and took special interest in subjects in any way related to music. He had gained self-confidence and became a well-adjusted individual.

Since it is difficult for a child with defective vision to take part in much of the music work of the regular grade, music appreciation periods should be given to take its place. Dramatics and eurhythmics may be combined with music to help give the child a tendency toward cultural interests.

The Other Children in the School.—Since one of the aims of day school classes for the visually handicapped is to provide normal social contacts at home and in school, sight-saving class pupils should be encouraged to mingle with their normally seeing classmates as much as possible. When a sight-saving class pupil enrolls in a school, a regular grade pupil should be given the responsibility of helping him get acquainted. He should be encouraged to play with children of his own grade rather than with those from the sight-saving classroom.

Anna, a fourth-grade sight-saving class pupil, asked to be allowed to remain in the room during recess. "I don't have any fun," she said. Arrangements were made for another fourth-grade girl to call for Anna at recess and to see that she

would be included in games. When Anna came in from the next recess, she said, "Boy! Did we have fun!"

The sight-saving class pupil should be encouraged to join clubs of the school, for the contacts made in that way may give him a feeling of belonging and of security, besides teaching him how to co-operate with others and how to make friends.

Alice, a sight-saving class pupil with low vision, very poor hearing, and asthma, felt dissatisfied with her high school life. She felt inferior and thought the other students slighted her. Then she joined the travel group of her school. The members visited local industrial plants, interviewed prominent people, and took a trip to Chicago. The work was financed by having candy sales, operating parking lots, and by other activities within the abilities of the members of the club. By working and planning with others in the group, Alice formed many friendships. She soon joined the Blue Triangle Club (Girl Reserves) and was chosen to serve as program chairman on the cabinet of the organization. She no longer complained about being ignored, but developed a pleasant personality. She was especially elated to think she had been asked to go to the prom.

The Regular Grade Teacher.—A satisfactory social adjustment for the partially seeing child may be advanced through his experiences in making friends and his successful participation in group activities; but without the co-operation of the regular grade teacher, his mental well-being is well nigh impossible. The regular grade teacher should make him feel that he is wanted in her class; otherwise, every day at school is a torture for the child.

Ruth came weeping from her mathematics class. "She doesn't want me," she moaned. "I'm too much bother." The mathematics teacher had refused to admit the child to the class because this necessitated copying the assignment twice—once on the blackboard for the class and again on paper for Ruth, who could not see the work on the blackboard. The principal solved the problem by having stenciled copies of the assignment made for all the class. The sight-saving class teacher was given a copy the day before and made a copy for Ruth in clear type. The mathematics teacher was grateful for the relief from copying; and Ruth was no longer conspicuous, for, like the others, she had her assignment on paper.

The sight-saving class pupil is happier when he is included in parties, excursions, and programs of his regular grade room.

For several days Jerry had been talking about the excursion his grade was to make to the fire station. "I hope they ask me to go with them," he said. One day he came in jubilantly to the sight-saving classroom. "They asked me! They asked me!" he beamed. "They want me to go with them to the station!" Another day he had gone to class for social studies, but came back saying that he could not find his class. Later, he tried again. When he returned, he said, "They have come back, and we've been talking about what they saw. They went to the park, but they forgot to tell me."

If the sight-saving class teacher helps the child find something valuable to contribute to the class, the regular grade teacher is likely to feel that the sight-saving class pupil is an asset instead of an added responsibility. Interruptions in the regular grade classroom, caused by the coming in and going out of the sight-saving class child, should be lessened by having him go prepared to stay for the class, and not allowing him to return to the sight-saving classroom for books and material.

The sight-saving class teacher should help the regular grade teacher in every possible way to understand the sight-saving class pupil who has been assigned to her class. When she understands him and the philosophy underlying his education, she will tend to be neither too protective nor too demanding; with understanding sympathy she will help him to measure up.

The teacher who taught English was better able to help Marie when she learned that Marie lived in a poor home with two bedrooms for nine people; that she had 35 per cent. hearing loss in both ears; that she had a speech defect; and that she had progressive myopia with 20/200 vision. This teacher visited the sight-saving class to learn more about how Marie's lessons were prepared. She found one child using the talking book listening to an assigned play. Three pupils were at the typewriter preparing their lessons for other classes. A paid reader was helping a child at a clear-type map, and another was reading a history lesson. The sight-saving class teacher was reading to another pupil a more difficult lesson—one that needed explanation. Each child had a program of work which had been arranged by the sight-saving class teacher to provide

for typewriting practice periods, academic subjects, electives, paid readers, music appreciation, and help from the sight-saving class teacher.

It should be easier for the sight-saving class pupil to adjust himself, achieve mental health, and be a normal individual if the sight-saving class teacher, the regular grade teacher, and the principal are in agreement as to his treatment. There should be uniform rules for adjustment, so that there will be no question as to which classes a child with defective vision should be admitted.

The Home Environment.—Unless the parents of the child cooperate in carrying out the aims of the sight-saving class, the child's adjustment is likely to be far from complete. All phases of the work should be discussed with them—the need of conserving the child's vision at home as well as at school, how to help him become independent, and how sight-saving classes are conducted.

Gordon attended school in a village in which there was no sight-saving class and failed two semesters in succession. He had headaches, and consequently seldom cared to play with other boys. His mother, of course, knew that her son was bright, and could not understand his failure, until an eye examination showed that he had hyperopic astigmatism and nystagmus. The mother visited a sight-saving class in Minneapolis and learned everything she could about the class. She was anxious to have her son in a similar class, and in three weeks, after the usual routine of eye clinic, etc., Gordon was admitted. He was shy, self-conscious, and cried a good deal. Because his mother understood the aims of sight-saving classes, in two days Gordon was able to come to school alone. Later, when the mother came to visit the class, she was very much pleased with the change in him. He was able to keep pace with the others, and enjoyed playing with them, for he no longer had headaches.

The kind of home in which the child lives has much to do with his adjustment. Gray² says: "The best home for developing normal personalities is one in which live normal personalities. . . . It is impossible . . . for bad personalities to develop in homes of normal people." The ill-adjusted child may have a broken home, indulgent or neurotic parents, or he may feel that he is not wanted in the home. To secure fairly satisfactory adjustments in cases like these is a difficult task, requiring much thought and tact.

The Sight-Saving Class Teacher.—To promote the mental health of a child in her class, the sight-saving class teacher should find opportunities for him to develop a feeling of success—opportunities to show himself to advantage before the group, and opportunities to learn. “Teach if you are cornered, otherwise let the children learn” is a maxim quoted by Burnham.⁵ “Frequent reassurance that the pupil is a fine, wholesome, wanted person will stimulate his desire to feel and act like normal. . . . Treat the maladjusted as much as possible like a normal child if you desire him to become one,” is the opinion of Howard and Patry.³

If the sight-saving class teacher wishes to help a child achieve a well-balanced personality, she must be well adjusted herself. She must keep physically fit in order to have the enthusiasm, pleasant voice and manners, and sense of humor that she hopes to help her pupils acquire. She should try to be professional, and should enjoy her work. Howard and Patry³ mention the following bad habits as causes of maladjustment in one's work:

“(1) Carelessness in performing the more unpleasant features of the job. (2) Grumbling about matters of small importance. (3) False suspicions and jealousy of others in the same work. (4) Bad temper and bickering in the family out of working hours. (5) A tendency to tire quickly of any kind of work and to be restless and pursue new jobs.”

Because of the way in which a sight-saving class is conducted, it is essential that the teacher's relations with the administration and with other teachers be as free of friction as possible. Friction between the sight-saving teacher and the principal or teachers would make normal adjustment of the child in the school exceedingly difficult.

Groves¹ summarizes the teacher's need for a well-adjusted personality as follows: “One of the fundamental needs of the educational system, from the mental hygiene point of view, is the better adjustment of teachers themselves. Release from fear, opportunity for cultivation of diverse interests, freedom for self-expression, the privilege of continuing their profession after marriage, would go far toward recreating the whole school personnel.”

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The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

History of My Glaucoma (Laqueur)*

TRANSLATORS' NOTE. — Ludwig Laqueur (1839–1909) was an ophthalmologist who, himself a sufferer of glaucoma, became famous through his discovery of the beneficial effect of eserine in this serious eye disease.

Eserine is one of the two drugs which still are the mainstay in the medical treatment of glaucoma. The other drug is pilocarpine, which was introduced by Weber in 1876.

Laqueur was born in Silesia, July 25, 1839. From 1872 on, he practised in Strassburg, where he was professor of ophthalmology and director of the University Eye Hospital.

In 1874, Laqueur experienced the first attack of glaucoma.

After experimenting on himself for a few years with his newly dis-

* Translated by Adolph Posner, M.D., and Mark J. Schoenberg, M.D. New York, N. Y.

covered remedy, eserine, he finally submitted to operations on both of his eyes. This was four years before the discovery of cocaine, the first local anesthetic. The operations were successful.

Twenty-two years later, he described his eye condition in an article which, however, he did not permit to be published until after his death.

This paper is his autobiographic case history. Coming from the pen of a distinguished eye physician, this account is without doubt very impressive. Besides its scientific value, it is of great interest, even now—especially to those who appreciate the purely human side of the story.

Laqueur's Story of His Glaucoma*

I was born on July 7, 1839, of Jewish parents.

In my family history, the follow-

* Written in September and October, 1902, and published in *Klinische Monatsblätter für Augenheilkunde*, 47: 639, 1909.

ing is to be noted: My paternal grandmother lived to be eighty-three years of age, but was blind for over thirty years. Her own description (which she had given me) of her eye disease which had set in with severe pain and inflammation, left no doubt in my mind but that she had become blind as a result of a bilateral acute glaucoma. The most famous physicians of that time, and even quacks, were consulted without success. Of her 16 grandchildren, no one but I have thus far developed glaucoma.

My father and his brothers and sisters also had healthy eyes. My brother was congenitally red-green blind.

As regards myself, I enjoyed a healthy childhood. Early in life, I noticed that, in spite of good acuity of vision, I could not distinguish colors as well as my playmates. Later, I learned that I had a typical red-green color blindness. This defect frequently caused embarrassment to me, and I tried to hide it as best I could. It was a handicap in my studies and in the practice of my specialty. In every other respect my eyes were normal and had an acuity of vision of 20/20 or, perhaps, somewhat higher. They were remarkably free of astigmatism. I was always somewhat sensitive to light and usually had very small pupils.

At the age of thirty-three, I took a three weeks' trip to Switzerland. The weather was generally clear

and because of my sensitivity to sunlight, I wore, out-of-doors, almost constantly, dark glasses mounted in a pince-nez. Even before the end of my trip, I noticed a change in my eyes. When I returned home, I realized that this change consisted of a slight astigmatism in the right eye.

One hot day, in July, 1874, I had the first attack of glaucoma. That day I returned to dinner from the clinic late and very tired, nay, exhausted and depressed by a tedious operation which I had performed. Still on the street, I noticed a fog before my right eye, and during my meal a similar fog made its appearance also in front of my left eye; then, when I lighted a match and looked at the flame, I saw for the first time in front of both eyes the ominous colored halos, which so often embittered my life in the years to come. Both eyeballs felt hard to the touch, which made me feel certain that I had glaucoma.

After some mental diversion and a walk, these symptoms subsided within a few hours and I passed the subsequent three months without a recurrence. In the left eye the symptoms recurred only at most two or three times; in my right eye, however, they appeared several hundred times before the operation.

The next attack followed again after a violent fit of passion. In the winter of 1874-75, the intervals between attacks still were long; often I was free from them for periods of

two to three weeks. In the summer of 1875 and in the following winter they returned more frequently and still later as often as three times a day (lasting one hour or longer); occasionally also at night or upon awakening early in the morning. The symptoms of my attacks were similar to those described by my glaucoma patients. In the case of the more severe and prolonged attacks, the colors faded and gave way to a colorless halo. Even the more severe attacks did not give rise to pain or any considerable redness of the eyeball. During the attacks the reduction of my vision fluctuated between $3/4$ and $1/10$ of normal. The field of vision never became contracted.*

It is of great importance to know the circumstances which precipitated the attacks. More and more did I appreciate the great bearing that psychic factors have on the onset of these attacks. *A fit of anger, of anxiety, a feeling of humiliation, nay, even the pleasurable excitement aroused by a stirring piece of music or by a beautiful stage performance, brought about an attack. Among the harmful physical influences were excessive hunger and staying in the poorly ventilated, overheated rooms typical of evening gatherings. Activity in the open air, on the other hand, shortened or stopped the attack.*

* *Translators' Footnote.*—At that time, some sixty years ago, the methods of examinations of fields were very crude and undeveloped.

When, in 1876, I discovered the action of eserine drops in lowering the tension in the eyes of patients suffering from glaucoma, I began to avail myself of this remedy. It has not failed in a single case and I do not recall any instance in which more than one instillation was necessary. But I soon realized that it does not prevent the recurrence of fresh attacks.

When the attacks increased in frequency (always only in my right eye), they interfered considerably with my activities. I suffered occasionally an attack during my lectures or in the midst of an operation and I had to exercise a good deal of self-control in order not to make it apparent.

I therefore gave some thought to the question of an operation. I decided to consult Dr. Horner of Zürich, Switzerland, and in December, 1878, I made a trip to see him. After a thorough examination he advised me to wait with the operation and to try to get along with the eserine drops. At the same time he prescribed a diet for me. His recommendations revealed him to be an excellent physician who knew how to individualize and who well deserved his fame.

I maintained a continuous correspondence with Dr. Horner, having at the same time established an intimate friendship with him. In the summer of 1879 I was able to report that my condition had at least not become aggravated, in spite of the

five years' duration of my illness. In November, 1879, I went again to Zürich. Dr. Horner found the visual acuity still normal, the visual field unimpaired, but the optic nerve was not entirely normal in appearance. After carefully weighing the pros and cons and taking my position into consideration, he now suggested an operation on the right eye which was to take place some time in the following spring. I accepted forthwith this sensible proposal.

It is quite natural that during the entire winter I was preoccupied with the thought of the impending operation. My career, perhaps even my livelihood, was at stake. The problem was not merely to refrain from damaging the eye through the operation, but to preserve normal or almost normal vision (and who can guarantee this?) and, in addition, I saw before me the specter of a similar disease in the other eye. Nevertheless I worked on in the usual way—except that I kept away from entertainments and *avoided more carefully than formerly everything which I knew to be harmful.*

On March 16, 1880, I was admitted to Horner's private clinic. Aside from Horner, his assistants and the superintendent, nobody knew my name. Since I felt it important that my identity should not become generally known, I requested that my name be kept confidential, which was actually carried out as far as was possible.

On March 18, Horner performed the iridectomy on my right eye. Since the latter was not irritated, the operation was not especially painful (cocaine was not yet known at the time). I would compare the sensation best to a fairly intense burning and it was not too difficult for me to keep my eye quiet, looking downward. For my co-operation during the operation, I was rewarded with flattering praises on the part of Dr. Horner, whom this surgical intervention on the eye of a friend and colleague affected emotionally perhaps more than it did his patient. The operation was entirely correct and the healing proceeded normally; for a few hours I had a slight burning beneath the bandage, then complete absence of pain. After three days, I was able to get up, and after five days, to go out, with protective goggles. I would have travelled home soon after this, leaving my left eye untouched, if not for the fact that on the sixth day the left eye experienced, without any special cause, a fairly severe attack. Although it responded promptly to eserine drops, it nevertheless induced Horner to perform an operation on this eye as well. I am most grateful to him for this decision, for otherwise my precarious condition would have continued on for years until finally the operation would have had to be performed anyway, under less favorable circumstances.

On the twenty-fifth of March

Dr. Horner operated on my left eye. The pain during the operation was about the same as 8 days previously in the right eye, but it did not subside after a few hours; instead, it even increased after three or four hours and became intense, radiating over the entire left side of the head. After some time I fell asleep for several hours and had no pain upon awakening. From this time on the healing proceeded undisturbed, and on April 4, I was able to leave the clinic.

I remained another 9 days in Zürich where (with the impression of my experiences still fresh in my mind) I dictated my paper, "On the Early Stage of Glaucoma."

Two weeks after the operation I was able to resume the full scope of my activities. The visual acuity at that time was 5/6 of normal.

I had one other attack since then, in April, 1881—I don't remember any more whether in the right or left eye. With this exception, I was fortunate in having experienced no glaucomatous manifestations since then (i.e., in the past twenty-two and one-half years; I hope to remain well for the rest of my life!).*

I must regard as one of the consequences of the operations a somewhat increased sensitivity of both eyes to light. This symptom had always been marked but was some-

what aggravated by the operation. I have, therefore, since that time, carried dark glasses in my pocket constantly, so as to be able to put them on whenever I should find it necessary (which indeed I used to do in snow, bright sunlight, and even in the city, without feeling self-conscious). Evenings in brightly illuminated rooms or halls, this was never necessary. Even more annoying than this dazzling was my anxiety lest my colleagues would discover that I had undergone an operation upon my eyes. Because of this perhaps stupid thought, I have suffered much and denied myself a good deal. When I conversed with people, especially with physicians, I would not look directly at them, but assume a gloomy, expression which I had never exhibited before.

Toward persons who spoke to me at close range and looked directly at me, I felt self-conscious and shy, and I must have impressed them as a man with a guilty conscience. I avoided intercourse with those people who might have recognized that I had been operated upon, especially with other ophthalmologists, and for this reason I refrained repeatedly from attending medical meetings.

The fear of my condition becoming widely known sprang not so much from my concern over the possible deleterious effect it might have on my position and my practice as from the fact that I wanted

* *Translators' Footnote.*—Up to the time of the author's death in his seventieth year symptoms never appeared.

to avoid the many questions of the sympathetic and the curious which offended my modesty. For this reason, too, I have not published my self-observations to date.

Since my operations, I enjoyed generally good health. The liberation from the burden which had depressed my spirit had a salutary effect on my nutrition and on my temperament. Intercurrent minor indispositions, such as head colds, occasionally but rarely—migraine attacks, toothache, as well as violent emotional disturbances and

great worry, never precipitated a glaucoma attack any more.

I may therefore consider myself as permanently cured. One can just imagine how often, and with what feelings of homage and gratitude I think of my great teacher, A. von Graefe (the inventor of an operation for the treatment of glaucoma*), without whose discovery I would have become an invalid in the best years of my life.

—PROFESSOR DR. LUDWIG LAQUEUR
(1839–1909)

* *Translators' note.*

News of State Activities

THIS Section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Only brief and timely items can be used, because of the limitations of space

District of Columbia

"Washington, D. C., has four sight conservation classes for white children and one for colored, according to Health Officer George C. Ruhland. Three of the four white classes are at the Henry School, one of which is for children who are mentally slow. The enrollment for the three classes is 45. Additional equipment is a talking book with radio attachments for each of the three classes. The Lions Club gave two of these books and the Parent-Teachers' Association gave the third book. All of these were acquired last year. Transportation is furnished for all children living in the District.

"At the Langley Junior High School there is the fourth sight conservation class for white children. They also have a talking book given by the Lions Club. The National Library for the Blind provides records whenever they are wanted. This service is free of charge. The enrollment of this class is fifteen.

"The sight conservation class for the colored is at the Douglas-Simmons School. This class has an enrollment of 28 and was established in 1934. At the present time there are 18 boys and 10 girls with grades from 2A to 6B. Bus transportation is provided for 23, trolley car transportation for 3, and 2 children live near enough to walk. All five sight conservation classes are under the control of the School Medical Inspection Service of the Health Department."

—*Bureau of Public Health Instruction, District of Columbia
Health Department, Washington, D. C.*

"Visually handicapped children need more mental enrichment than do normal children. It is imperative for them to learn non-

visual uses of leisure and therefore to explore activities which can be pursued without eyestrain.

"Toward this goal the District of Columbia Society for the Prevention of Blindness has taken a small initial step in the form of an Outdoor Club for one of the Washington sight-saving classes. The Club serves the double purpose of getting the children into the fresh air and of stimulating their interest in and knowledge of the world about them.

"A volunteer with a background in science takes the children one afternoon each week on a field trip to nearby points which present interesting geological or botanical features, or which demonstrate the use of natural resources. Such lines of inquiry as arise are followed up. A visit to a flour mill operated by water power leads logically to the construction of water wheels which may be made inexpensively of corks and strawberry boxes, a delightful project which does not tax the eyes.

"Inasmuch as this venture is in an experimental stage, the District of Columbia Society for the Prevention of Blindness will be grateful for suggestions from sight-saving and science teachers."

—*District of Columbia Society for the Prevention of Blindness,*
Washington, D. C.

Illinois

"During the past year the Illinois Society for the Prevention of Blindness has organized a Medical Advisory Committee, which we hope eventually will cover the 102 counties of the State of Illinois.

"It is the aim of the Society to find a doctor in each county who will represent the Illinois Society for the Prevention of Blindness to his county medical society, and who will explain prevention of blindness to all the general practitioners in his county.

"A list of qualified men was obtained from the Illinois Medical Society in January of 1940, and since that time the Society has been successful in getting doctors from 77 of the 102 counties to serve on this board. The plan is for each doctor to give a 15-minute paper once a year before his county medical society on prevention of blindness. Each year his paper will deal with a different method of prevention of blindness.

"This year the doctors are giving a paper on sight-saving classes. They are using the material which the Society puts out for them, which consists of:

1. A history of the sight-saving movement, both national and local;
2. The figures for their county on the WPA eye testing projects;
3. A description of what type of child should be referred to sight-saving; and

4. A general talk on diseases of the eye as they occur in school children.

"Already over fifty of the doctors have made their first appearance before their County Medicals. Next year papers will be furnished on ophthalmia by the Illinois Society for Prevention of Blindness which will include national, state and county figures."

—*Illinois Society for the Prevention of Blindness, Chicago, Illinois*

Minnesota

"*Summary of Activities.*—The Minnesota Society, established in August, 1939, is now in its second year. Recognizing that conservation of vision is largely the responsibility of the individual and his family or group, the Society has concentrated on an educational program through radio talks, syndicated newspaper articles, exhibits, and programs at the State Fair, the Minnesota Educational Association, and similar projects."

—*Minnesota Society for the Prevention of Blindness, St. Paul, Minnesota*

Missouri

"The Woman's Auxiliary of the Missouri State Medical Society has graciously consented to conduct an essay contest among the school children on the conservation of vision.

"The contest is under the direction of Mrs. James J. Drace, Cape Girardeau, Missouri, for the auxiliary; and Dr. John McLeod, Kansas City, Missouri, for the committee.

"We are placing a speaker on ophthalmic subjects on the programs of every State Councilor District Meeting. (The State Society is divided into districts and each district has an annual meeting.)"

—*Committee on Conservation of Eyesight, Missouri State Medical Society, St. Louis, Missouri*

Pennsylvania

"*Inter-Branch Conference of the Pennsylvania Association for the Blind.*—The Venango County Branch was indeed happy to have the Inter-Branch Conference of the Pennsylvania Association for the Blind held in Oil City on October 10, 11, and 12, 1940. The sessions included: Prevention of Blindness, Occupational Therapy, Social Work Standards for the Blind, Central Control of Stand Concessions, and the Importance of Organized Retail Sales. Miss Elizabeth G. Gardiner, Medical Social Worker of the National Society for the Prevention of Blindness, discussed 'Qualifications and Experience for Initiating and Administering a Prevention of

Blindness Program.' She supplemented her talk with talking slides, which were not only interesting but also were helpful in clearing up misunderstandings regarding the importance of training and experience in administering a prevention of blindness program. The topics regarding occupational therapy, social work standards, stand concessions, and retail sales were ably discussed, respectively, by Miss Isabel Campbell of the Pennsylvania State Council for the Blind, Dr. Augusta E. Galster, Mr. Joseph F. Clunk of the United States Office of Education, and Mr. Eugene Morgret, Sales Manager of the Pittsburgh Branch, Pennsylvania Association for the Blind. These talks were followed by round table discussions which gave each person present a chance to give his views on the subject under consideration.

"Like most conferences, the Inter-Branch Conference of the Pennsylvania Association for the Blind had its social activities which were equally as important as the discussions. The Venango County Branch gave a reception Thursday evening to welcome the guests and to give them an opportunity, not only of getting better acquainted with each other, but also of meeting the local people interested in the work for the blind. Miss Lilian E. Latimer gave a most enjoyable talk at the Friday luncheon.

"On Friday evening, October 11, the Venango County Branch celebrated its tenth anniversary at a banquet. The highlight of the evening was the address by George F. Meyer, Chief Executive Officer of the New Jersey Commission for the Blind, who spoke on 'Modern Trends in Work for the Blind.' Mr. J. B. Mohler, Superintendent of the Venango County Branch, traced 'The History and Growth of the Branch.'

"On Saturday morning, the superintendents of the various branches met to discuss their problems. Their meeting was followed by a sight-seeing trip to Drake's Well, one of the historic landmarks of Pennsylvania. The Conference concluded with a meeting of the trustees of the Pennsylvania Association for the Blind.

"This Conference was helpful, not only for the information obtained from the various discussions, but also because of the personal contacts which were made possible through the social events. The individual worker, unless he attends conferences, is apt to become narrow and provincial in his views of the work for the blind and the prevention of blindness."

— *Venango County Branch, Pennsylvania Association
for the Blind, Oil City, Pennsylvania*

"Prevention of blindness activities are going along as many lines as usual. This fall we have been placing a good deal of emphasis

on our isolated sight-saving class children, of whom we now have 48 scattered through 36 different school districts. We have National Youth Administration students copying into bulletin type work which is not available in the twenty-four-point type, with volunteers adding their bit of help every now and then. We have also been giving our usual vision testing demonstrations, and have, since the opening of school in September, screened about 1,000 children. We have begun to review with Department Assistance workers some 150 cases of blind pension recipients who have been recommended medical care for restoration or preservation of vision, and expect to be able later to show some interesting results."

—*Pittsburgh Branch, Pennsylvania Association for the Blind, Pittsburgh, Pennsylvania*

South Carolina

"*From the Annual Report.*—Sixteen lectures on eye health were given by leading ophthalmologists in the State to approximately 1,700 students of Winthrop College, the Citadel, and the University of South Carolina.

"The Medical Social Worker of the agency has been present at district meetings of county staffs for the purpose of interpreting social and medical implications of blindness, and of the many services which professional and lay groups could render in a program of conservation of vision and prevention of blindness. Instructions were given in the technique of vision taking, information necessary when interviewing applicants for C.C.C., Aid to the Needy Blind, and services from the Division.

"1,457 persons attended the twelve clinics held in the various parts of the State during 1940. Financial investigation was made by respective County Departments of Public Welfare of those found to have vision of 20/70 or poorer. After determination of eligibility, examination and follow-up, treatment was authorized by the Division, resulting in 370 ophthalmological examinations. In addition, necessary treatment was paid for by the parents of a large number of children when the need was explained, and others received medical care through local resources. There is still a large group who should have examination, but whose vision is yet too good to permit them to be considered for service.

"The Division assisted in the purchase of 270 pairs of glasses, given only upon written statement from examining ophthalmologists that glasses were a necessary treatment in conserving vision or preventing blindness, or in the removal of the client from the category of the blind or the partially blind to that of a person with normal or near-normal vision.

"An additional type of service brought out by ophthalmological examination has been that of needed medical treatment for those persons who are unable to supply it for themselves. The co-operation of other agencies has been of great assistance to this part of the program.

"The co-operation of the State Department of Public Health in forwarding to the Division all copies of weekly reports of ophthalmia neonatorum has resulted in follow-up services to several persons for whom it has seemed necessary. Indications are definite that blindness for at least two babies was thus prevented during the past year. South Carolina can be justly proud that it now has a law requiring the use of prophylactic in the eyes of new-born infants. Subject to this recent legislation, the Department of Public Health had printed new birth certificates, recording both time of administering prophylactic and the type used. The 32,567 birth certificates compiled to date have been reviewed by the Medical Social Worker of the Division with the following disclosures: that old forms instead of new ones have been used by both physicians and midwives; and that only 3,167 of the total number indicate any record of the use of the prophylactic required by State law. The Department of Public Health is interested, however, and will make every effort to enforce the use by both midwives and physicians of new certificates for the ensuing year.

"During the past session, co-operation with the School for the Blind, Cedar Spring, South Carolina, has been splendid, and has enabled the Division to render requested services there. Copies of all ophthalmological reports on blind children have been furnished the register, and have provided information for authentic study on causes of blindness in South Carolina. A forward step has been made by the Superintendent of the School in his recommendation to its Board of Commissioners that ophthalmological examination be considered a prerequisite for school entrance. This policy will safeguard both the school and the student, as well as the taxpayer."

—*Division for the Blind, State Department of Public Welfare, Columbia, South Carolina*

Tennessee

"*Report of State Activities in Sight Conservation from July 1, 1940, to December 1, 1940.*—During the period from July 1 to December 1, 1940, through the co-operation given the Sight Conservation Service by the eye physicians of the state and the financial support given it by the Lions Clubs of Gallatin, Centerville, Nashville, Lafayette, Waverly, Old Hickory, and Memphis, the Big Brothers Organization of Nashville, various Parent-Teacher groups, and interested

individuals, it has been possible for the Service to have varying amounts of sight in one or both eyes restored to 89 persons, 69 being children and 20 being adults—77 of these being restoration by glasses alone and 12 being restoration and prevention of blindness by surgery and glasses. During the same period, either total or partial blindness in one or both eyes either has been or is being prevented for 48 persons, 42 being children and 6 being adults; 36 having blindness prevented from amblyopia exanopsia, all being children; 4 having blindness prevented from sympathetic disease by the enucleation of the injured eye, 2 being adults and 2 being children; 3 having blindness prevented from glaucoma, 2 being adults, who had secondary glaucoma following traumatic cataracts, and one being a child with congenital glaucoma, cataract extractions being done on the 2 adults and Elliott trephines being done on the child with congenital glaucoma; 2 having blindness prevented from trachoma by treatment, both being children; and one each having blindness prevented from retinal detachment, crossed eyes and congenital cataracts by surgery, 2 being children and one being an adult.

“On October 14, our third sight-saving class was established in the Nashville city school system to care for the educational needs of our visually handicapped children from the seventh through the twelfth grades, which gives Nashville one complete unit from the first through the twelfth grades for sight-saving class education. Seven children are at present enrolled in this class, and eight others are available and will probably be enrolled in this class when the next term begins in January. The teacher for this class was trained by a fund established for this purpose for Nashville by the Centennial Club. The Sight Conservation Service supplements her salary for nine months at the rate of \$15.00 per month and furnishes some books, the Nashville city school system decorating the room and furnishing the equipment, as well as the maintenance of the class. Enough children have been found in four other counties of the state, as well as the city of Nashville, to make the establishment of a sight-saving class in these communities practical, and plans are being made by the Service for the establishment of these classes next year.

“During the past five months limited co-operative programs in the prevention of blindness and conservation of vision for indigent school children have been begun with the Big Brothers Organization and the Old Hickory Lions Club for Davidson County, with the Lafayette Lions Club for Macon County, and with the Parent Teacher Council for Montgomery County.

“The District Governor of District Twelve-A, Lions International, has appointed a Lions State Blind Committee to assist the

Director of the Service to plan a program for sight conservation in which all of our 55 Lions Clubs, both individually and as a body, may participate. It is planned that this committee will meet early next year.

"From July 1 to 4, the transcribed fireworks program prepared by the National Society for the Prevention of Blindness was presented over the air by seven of our radio stations, three being in Nashville, one each being in Memphis, Chattanooga, Knoxville and Jackson, and one of these presentations was followed by a talk on 'Blindness Due to Fireworks in Tennessee.' Since July 1 no cases of blindness due to fireworks have been reported to the Sight Conservation Service but, of course, this does not mean that no such accidents to the eyes have occurred.

"On October 12 a meeting on special education was held in Nashville with representatives of all groups of handicapped children being present. Out of this meeting came the formation of three state-wide committees whose purpose is to formulate and prepare a practical and workable program for special education for all groups of handicapped children.

"The survey of the blind of the state is now about 75 per cent completed, comprising 3,126 cases, and the facts coming out of this survey as it now stands indicate: that 65 per cent of this blindness might have been prevented and that between 70 per cent and 80 per cent of the blindness occurring in children in Tennessee might be prevented; that slightly more than 50 per cent of this group have a chance to have sight restored to them in whole or in part in one or both eyes by appropriate ophthalmological measures; and that a large majority of this group have a chance to have enough sight restored to them to permit them to engage in some gainful occupation."

—*Sight Conservation Service, State Department of
Public Health, Nashville, Tennessee*

Note and Comment

Special Publication to Honor Dr. Park Lewis.—A supplement of the forthcoming REVIEW will be printed in honor of Dr. Park Lewis, our recent Vice-President, whose death was announced in the last issue of the REVIEW. The monograph will contain the tributes paid to Dr. Park Lewis at the annual meeting of the Society. The general subject is "The Heritage Left to Coming Generations by Dr. Park Lewis." Dr. Elliott B. Hague of Buffalo describes the ophthalmological aspects; Mr. Lewis H. Carris, the international aspects; Dr. Ellice M. Alger, the prevention of blindness aspects; and Mr. Charles Pascal Franchot, the humanitarian aspects of Dr. Lewis' gifts to society. Of course, subscribers of the REVIEW will receive the supplement.

New President of National Society.—Mason H. Bigelow, a member of the law firm of Gould & Wilkie, One Wall Street, New York City, was elected president of the National Society for the Prevention of Blindness by the board of directors on the occasion of the Society's annual meeting in New York, Thursday, December 12. William Fellowes Morgan, who retired as head of the organization after serving the entire twenty-five years of its history, will have the title of president emeritus.

Mr. Bigelow, a native of Utica, N. Y., was graduated from Amherst College in 1909 and from Columbia University Law School in 1912. He has been a member of the board of directors and executive committee of the National Society for the Prevention of Blindness for the past six years. He is chairman of the executive committee of the Association of the Bar of the City of New York and a member of the executive committee of the New York State Bar Association. He is also a trustee and member of the executive committee of the New York Public Education Association; a member of the board of visitors of Columbia University Law School and a member of the standing committee of its alumni.

Dr. Edward C. Ellett, of Memphis, Tenn., was elected a vice-president to fill the vacancy left by the recent death of Dr. Park

Lewis, of Buffalo, N. Y. Two other vice-presidents are Russell Tyson, of Chicago and Preston S. Millar, of New York City.

Dr. Ellett received the Leslie Dana Gold Medal in 1939 for "outstanding achievements in the prevention of blindness and the conservation of vision." He is former chairman of the Section on Ophthalmology of the American Medical Association, and a former president of both the American Ophthalmological Society and the American Academy of Ophthalmology and Oto-Laryngology.

Patient Honors Ophthalmologist.—The following letter was received a short time ago from Borghild M. Dahl, of Minneapolis, Minnesota, who has been handicapped all her life by extremely poor vision: "A year ago, after a period of darkness, I regained my sight through surgery and ophthalmology. The experience was more wonderful than an awakening from the dead. This little poem is an expression of what hundreds must feel because of the efficient and unselfish work of surgeons and others of you who belong to your blessed Association for the Prevention of Blindness."

LIGHT

(Dedicated to Dr. W. L. Benedict)

The long darkness of a weary night
Engulfed me tortured on my bed of pain—
Without the shimmer of a ray of light,
What happiness could mortal life retain?
Grief, worry, danger and daily care,
Which formerly had blocked my way,
Now seemed mere phantoms high afloat in air
When likened to a dismal sightless day.

But lo, the blackness lost its gloom;
And, from my window toward the east,
A hazy purple filled the room,
That grew in radiance, heralding a royal
feast.

And then I knew that with the morn
I lived again, at dawn reborn.

—BORGHILD DAHL

National Society Again Participates in Observing National Social Hygiene Day.—Because of the close relationship between the prevention of blindness and the campaign to stamp out syphilis, the National Society for the Prevention of Blindness again is taking an active part in the observation of National Social Hygiene Day on February 5, 1941. In addition to making venereal disease control and eyesight the subject of a special publicity campaign, the Society is participating in the Regional Conference on this subject to be held in New York City under the auspices of the Social Hygiene Committee of the New York Tuberculosis and Health Association. An exhibit will be maintained, and representatives of the Society will participate in the all-day sessions.

Eye Accidents on the Skeet Field.—Attention has been called to the fact that eyes have been lost or seriously damaged by clay target fragments and ricochet shot pellets during the practice of skeet and clay target shotgun shooting. Writes Bob Nichols, the editor of the Arms and Ammunition Department of *Field and Stream*: "The subject of skeet shooting should certainly be included in eye safety propaganda because skeet is not only being used at all U. S. military flying fields, but it will probably be a part of the curriculum of every infantry training school from now on. I have, over a period of years, consistently urged shooters not to fail to wear shooting spectacles made of good optical glass when on the skeet field."

Study Suggests Moderate Drinking Has Little Effect on Vision.—Studies made on twenty-one persons, most of them professional men and their wives, showed little evidence that the drinking of moderate amounts of alcohol significantly affects the vision, Z. William Colson, M.D., Boston, reports in *The Journal of the American Medical Association* for November 2.

His investigation was undertaken to determine the immediate visual effects of a few drinks as ordinarily consumed by the drinking public, Dr. Colson says. There was no attempt to appraise the effects of chronic alcohol intoxication.

After preliminary tests of vision had been made for the purpose

of a "before and after" comparison, each subject was given two ounces of good quality rye or scotch with ginger ale or soda or without as he chose. The 2-ounce drinks and tests were repeated at half-hour intervals until the subjects became incapacitated for further tests.

Tests revealed no important effect on visual clarity or color vision and no lessening of the field of vision. Tests for adapting the eyes to sudden darkness also gave negative results except in one case, in which such adaptation was already abnormally low. "These tests suggest that alcohol has no effect on dark adaptation when one's margin of safety is high," the author says, "but it may have a definite effect when through vitamin A deficiency or severe fatigue the reserve is low."

However, he warns that until more accurate tests are devised one should not assume that there is no momentary effect on dark adaptation after the consumption of alcohol. While the tests done in this series show no appreciable change, there may have been changes which the technic employed was not quick enough to catch. Such retardation, if present, would be extremely hazardous in night driving—for example, in seeing objects on the road after being subjected to the glare of oncoming headlights.

Regarding tests of muscle balance of the eyes, Dr. Colson says that all subjects showed a gradually increasing esophoria (tendency to cross eye).

"While no depth perception tests as such were done," he observes, "it seems probable that the esophoria noted would have a definite effect on depth perception. It would seem that one who drinks frequently would be more likely to educate oneself to allow for changes in distance values than would the very occasional drinker. It was suggested to me by Dr. F. H. Verhoeff that the esophoria would affect chiefly the judgment of absolute distance and have no important effect on that of relative depth."

Committee on Glaucoma Issues Rules for Glaucoma Patients.—The National Society's Committee on Glaucoma, consisting of Mark J. Schoenberg, M.D., chairman, Ellice M. Alger, M.D., Conrad Berens, M.D., and C. Edith Kerby, the Society's statistician, have approved the following rules for glaucoma patients.

Plans are under way to make reprints of the set of rules available in quantities at cost to hospitals, clinics, practicing ophthalmologists, and other interested groups or individuals. The rules are listed below:

Rules for Glaucoma Patients

By

Committee on Glaucoma,
National Society for the Prevention of Blindness

1. Carefully follow your eye physician's instructions and remember especially to return for reexamination at the appointed time.
2. Consult him at once if you see rainbow-colored halos around lights, if the eye becomes painful, or the vision is blurred, or sight impaired in any way at all.
3. Avoid as much as possible excitement, anger, worry, fear or disappointment.
4. Take care that bowel movements are regular.
5. Avoid tight-fitting clothes—especially a tight collar, corset, or belt.
6. Keep your blood circulation active. If occupation compels you to sit the entire day, take a long but not too tiring walk before and after work.
7. Keep your teeth clean and healthy; pay attention to acute or chronic colds.
8. Limit drinking coffee and tea (not too strong) to one cup a day. Avoid alcoholic drinks.
9. Keep bedroom well ventilated and at a moderate temperature; around 70 degrees (Fahrenheit).
10. Avoid dark rooms as much as possible. Go to movies only if your eye physician permits. Remain at the movies for only one feature and, if possible, choose subjects that are not depressing or upsetting for you.
11. Do not use any drops or eye washes without consulting your eye physician. They may be very harmful.
12. Have a periodic (yearly) examination of your entire body by your family physician.

Current Articles of Interest

Rôle of Visual Defects in Spelling and Reading Disabilities, George Spache, Ph.D., *American Journal of Orthopsychiatry*, April, 1940, published quarterly by the George Banta Publishing Company, Menasha, Wisconsin.

This article presents a very wide review of the literature relating to the effect of visual defects on reading and spelling abilities, going back as far as 1917. It includes an extensive bibliography.

From the review of the literature, the author has drawn certain conclusions which may be summarized as follows:

1. Many investigators have made comparisons between the visual characteristics of an experimental and a control group and find insignificant differences between the groups. The apparent implication is that visual defects are probably not causal factors, but it would be possible to assemble a number of case histories clearly demonstrating the causal rôle of any of these defects in individual cases. Normal vision is universally recognized as essential to progress in reading and spelling and it is further recognized that visual defects may be the cause of poor progress in certain cases. Hence, even though data fail to prove that defective vision is a causal factor in retardation *per se*, it does not disprove that defective vision may contribute to retardation. Further evidence that this is so is presented by the fact that correction of defective vision often results in more than average improvement in spelling and reading, especially when combined with remedial reading.

2. Of the refractive errors, hyperopia is frequently present in poor readers and correction of the defect frequently brings markedly improved achievement. Mild myopia is more frequently associated with good reading progress. Astigmatism—hyperopic and myopic—may be associated with either good or poor reading and spelling progress.

3. Evidence favors the belief that muscle imbalances, especially exophoria and the concomitant fusional difficulties, are associated with less than normal reading and spelling progress.

4. Growth in interpupillary distance, which is usually greatest

at about the time the child is in the first grade, may (according to one investigator) require too great an adjustment at a time when the child has many other adjustments to make and, hence, may interfere with reading.

5. Loss of co-ordination results in fusional difficulties and suppression of vision in one eye; both of these difficulties have important concomitants in reading and spelling.

6. The presence of aniseikonia (images of unequal size in the two eyes) in young children apparently constitutes a handicap, and correction of the defect results in marked improvement. However, mature students appear to be able to compensate for this defect and, hence, do not seem to be hindered by its presence.

7. Limited peripheral fields of vision appear to affect the visual span and partially account for perception in small units, which is frequently observed among poor readers and spellers.

Sulfonamide Treatment of Bacterial and Trachomatous Conjunctivitis, Dr. A. F. MacCallan, *British Medical Journal*, March 23, 1940, published weekly by the British Medical Association, London, England. Dr. MacCallan explains that the term "sulfonamide" is a generic one embracing the trade-name compounds prontosil rubrum, prontosil soluble, rubiazol, uleron, sulfanilamide, proseptasine, soluseptasine, and sulfapyridine. These compounds probably act by neutralizing a metabolic function or an enzymatic activity and have a bacteriostatic effect on the invading organism dependent in many cases on the defense mechanism of the host. It has been shown, however, that blood from trachomatous persons contains no demonstrable substance capable of inactivating or neutralizing the infective agent.

After the diagnosis of trachoma has been made, the author suggests several procedures that should be carried out before treatment is instituted. These are: cultural examination of the conjunctival flora; slit-lamp examination of the tarsal conjunctiva of the everted upper lid and of the corneal periphery in its upper fifth; a momentary application of Graddy's or Knapp's forceps to the conjunctiva to see if gelatinous material is expressed from the excrescences; and Giemsa-stained epithelial scrapings from the upper tarsal conjunctiva for the detection of inclusion bodies of virus infections.

After the drug course has been completed, these procedures should be repeated and differences noted.

As the drugs of the sulfonamide group have not yet been found to have any effect on virus diseases, Dr. MacCallan concludes that the good results attributed to these drugs have been procured by the elimination of superimposed bacterial infections and states that remarkable results may be expected from this form of treatment in many cases of bacterial conjunctivitis and blepharitis.

Sympathetic Ophthalmia, Rodman Irvine, M.D., *Archives of Ophthalmology*, July, 1940, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. From a review of 63 cases of sympathetic uveitis recorded at the Massachusetts Eye and Ear Infirmary, Dr. Irvine concludes:

“In this series there is no instance of sympathetic ophthalmia developing without perforation of the globe.

“If enucleation is to prevent the development of sympathetic uveitis, it must be done before two weeks have elapsed from the time of injury.

“Once sympathetic uveitis has developed, enucleation of the exciting eye has no effect on the course of the disease, and this eye should be retained, if potentially useful, as it may eventually be the better eye. From the available data there is no indication that the exciting eye acts as a focus of infection ‘spilling over’ into the sympathizing eye.

“Considering the frequency of occurrence of sympathetic ophthalmia, 1 per cent of all perforating injuries, attempts to save severely damaged eyes, especially if the lens is injured, are not justified if the fellow eye is normal. A distinct possibility of sympathetic uveitis must be considered when operation is contemplated on eyes nearly blind from any cause, as, for instance, hemorrhagic glaucoma.”

Glaucoma Errors That I Have Made and That I Have Seen, Harry S. Gradle, M.D., *Southern Medical Journal*, published monthly by the Southern Medical Association, Empire Building, Birmingham, Alabama. First among the mistakes which Dr. Gradle frankly states are commonly made in treatment of glaucoma is failure to diagnose and classify exactly all the forms examined. Under “primary glaucoma,” he notes the uncompensated form, cor-

responding to a great degree to what was earlier called the inflammatory or congestive stage, and, further, whether the condition is acute or chronic; subsequent to the primary uncompensated form of glaucoma is named the compensated, non-inflammatory condition; finally, under primary manifestations, is juvenile glaucoma. Secondary cases constitute the second group. Absolute glaucoma is, of course, the third and final classification. In the belief that glaucoma cases will in future be registered as uncompensated, compensated, or absolute, Dr. Gradle predicts the ultimate disuse of terms indicating primary or secondary phases. As knowledge of the cause of glaucoma advances, increasing numbers of cases will be considered secondary rather than primary. Characterized as a serious universal mistake is failure of ophthalmologists to discuss the disease in detail with glaucoma patients seen in private practice. Failure to tell the clinic patient specifically what is wrong with him is another error scored by Dr. Gradle, who praises the social service work instituted by outstanding hospitals and clinics to educate patients concerning their complaint and win co-operation in preserving such sight as may be saved. In treating cases of acute uncompensated glaucoma, the author confesses to having wasted time in trying to reduce hypertension before resorting to operation, and here suggests 48 to 72 hours after the onset of the attack as a maximum time period for employing non-surgical measures to reduce suffering. It is his thought that more frequent errors occur in diagnosis and treatment of compensated glaucoma cases, which abound in a proportion of ten to one. The article states:

“The bilateral blindness in this country due to various forms of glaucoma has been estimated at anywhere from 8 to 12 per cent; in other words, somewhere between 10,000 and 15,000 individuals of the 120,000 blind in the United States are blind as the result of glaucoma, and fully 90 per cent of that could have been prevented by early diagnosis. We cannot expect the non-medical refractionists or lay people to make an early diagnosis. It is up to us, as ophthalmologists, to diagnose compensated glaucoma in the early stage before damage has been done, and when appropriate treatment will still preserve visual acuity for the patient throughout the rest of his life.”

In the author's opinion, the ophthalmologist should view as a potential glaucoma case every patient past 30 years of age. He insists upon the control of tension before and after use of a mydriatic, to ascertain presence or absence of hypertension. An increase in ocular pressure registered after use of a mydriatic is thought sufficiently significant to justify further study to determine if that increase may be an early pre-glaucoma symptom. The prevailing treatment of compensated glaucoma is criticized, since private patients with early forms of compensated glaucoma, given a choice of control by myotics or surgery, consistently choose the former. It is agreed that clinics should perform early surgery, to circumvent later loss of sight through failure of its patients to continue treatment. But Dr. Gradle deplores basing medical control of compensated glaucoma on pressure measurements, arguing that unless the three functions of vision are preserved by the treatment administered, maintenance of "normal" tension in the glaucomatous eye is no proof of successful control of the disease. He states: "The pressure we must know in order to know what the degree is, but our estimation of the efficacy of the treatment must depend upon repeated and comparative measures of the function of the eye, and the function consists of central visual acuity, central visual fields, and peripheral fields."

Paradoxical Monocular Ptosis, Tomas R. Yanes, M.D., *Archives of Ophthalmology*, June, 1940, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago. The author contrasts the history of a patient with the few similar recorded cases, his presenting symptoms at once markedly like and unlike those reviewed in earlier medical literature. Briefly, the subject suffered failing vision in the left eye and deviation of the eye outward, accompanied by almost complete occlusion caused by paralytic drooping of the upper lid. The latter condition was observed to disappear completely when the right eye had been occluded, or when the affected left eye was directed inward or outward. Vision of the right eye was normal; that of the left eye, 1/20, though both media and fundi were normal. A history of incomplete treatment for an old syphilitic infection was elicited, and operation for cosmetic effect was requested. Surgery, which

revealed unnoticed slight exophthalmos, produced an esthetic amelioration of the ptosis when the eye was in a central position, the lid pressing on the cornea. Tucking of the levator muscle produced further improvement, the paralytic drooping of the lid being imperceptible when the unaffected eye is closed or occluded, or when the gaze is directed inward or outward. The author tabulates and contrasts the symptoms observed in his patient with those of the only other detailed case recorded, observing that any pathogenic interpretation of this phenomenon would probably be fallacious. It is believed that these few rare cases of paralytic monocular ptosis form a diagnostic basis for closer study of the functional paralysis of ocular movements.

Book Reviews

THE CLINICAL AND EXPERIMENTAL USE OF SULFANILAMIDE, SULFAPYRIDINE AND ALLIED COMPOUNDS. Perrin H. Long, M.D., and Eleanor A. Bliss, Sc.D. Baltimore. The Macmillan Company, 1939. 319 p.

The short space of time elapsing between the discovery of sulfanilamide and sulfapyridine as therapeutic agents and the present in which they play a role of paramount importance in the treatment of a wide range of diseases has left most practitioners far behind the front line of progress and more than a little in doubt as to the indications, method of treatment and dangers associated with the use of these and related compounds. This ignorance has prevented the use of these drugs in many cases when they might not only have been helpful but actually life saving. Long and Bliss have done an outstanding piece of work in gathering together the available literature, to which they have added an enormous amount of their own experimental and clinical observations. These they have organized into a compact, practical and authoritative text which takes up the history, the experimental basis, the clinical use and the toxic manifestations of these compounds, and which gives an evaluation of the use of each in the diseases on which they have been tried. A rational mode of therapy, with detailed and explicit information, is included as well as two very helpful treatment tables for the use of sulfanilamide.

Although little space is devoted to eye diseases, as the authors have had little personal experience with the use of these preparations in them, they quote the good results of others in the treatment of gonorrheal ophthalmia, trachoma, and orbital cellulitis. They also quote an interesting case of toxic optic neuritis developing after the use of sulfanilamide.

This work definitely puts chemotherapy with this group of compounds on a scientific basis and should banish the cloud of doubt and fear which has persisted in many medical minds regarding the use of these new preparations.

—HENRY B. ABBOTT, M.D.

A WORKBOOK IN HEALTH FOR HIGH SCHOOL GIRLS. Gladys B. Gogle, M.S. New York: A. S. Barnes and Co., 1938. 267 p.

As indicated in the title, this publication should not be considered as a textbook, but rather as an outline for teachers and a guide for students in their joint effort to meet the health problems of the high school girl.

The work is divided into two books, each comprised of a number of units, and each unit subdivided into three problems. Book I deals with personal hygiene problems common to high school girls. Book II continues this study, placing more stress on the physiological background. In this section also the pupil is encouraged to consider herself objectively rather than subjectively, and in so doing gain an introduction to mental and to community hygiene.

In the foreword to teachers the unit arrangement is mentioned as a means of meeting the individual needs of the students. Here, also, mention is made of possible sources of supplementary materials and visual aids, and suggestions offered for the use of such materials. The author points out that since this publication is an outline, pupils should be encouraged to gather information from several of the books mentioned in the bibliography.

The foreword to pupils is frank and intimate, and should appeal to the average high school girl. The provision of duplicate medical and physical examination blanks, with the suggestion that the student copy her record, is an excellent idea. A personal interview with the health counselor, based on examination findings, would be of great value if this workbook is to be used as a basis for the entire course in hygiene.

Considerable emphasis is placed on the periodic checking of health habit charts. While there is a degree of interest in this type of personal inventory, there is danger of lessening the interest through too frequent checking of the same chart. Such may not be the case in a situation where one teacher has the privilege of being health counselor to the same group of girls throughout their high school course, and has been able to work out individual health problems with them over a period of time. This ideal situation is unfortunately the exception, rather than the rule.

The checking of the period chart is important, although explanation and discussion of the menstrual cycle, not necessarily as com-

plete as is given in Book II, seem imperative as a prerequisite to keeping such a record.

Judging from the arrangement of the workbook, pages may be torn loose at the perforations and handed in as homework or class work. From the standpoint of uniform notebooks and standardization of questions, such a plan is convenient and to some degree commendable. Too often questioning in hygiene matters calls for the correct answer with little real thinking, knowledge, or practice, to corroborate it. The questions as stated in this outline are well planned and interesting enough to stimulate thought and reasoning.

Two difficulties present themselves at this point. In most schools hygiene is a minor subject and as such calls for no outside preparation. In addition to this, the time allotted for health teaching is limited. Many of the topics in the various units, if they are to be adequately covered, call not only for preparation on the part of the pupil, but also for considerable explanation on the part of the teacher. "Understanding the Importance of Safeguarding Eyes and Ears" presents just such a difficulty. In this unit the structure, function and care of the normal eye, temporary impairment of vision, errors in refraction and correction of such errors, and diseases that affect the eye are dealt with in detail. A short discussion of the structure and care of the ear is also included. High school students, particularly those having little or no scientific background, do not grasp such material readily. It would add considerable interest to such a topic if special reports could be made on the work being carried on for the prevention of blindness and deafness, and where feasible, actual visits made to organizations and institutions carrying on preventive programs. Other problems such as, "To Observe Your Own Posture Needs," present similar difficulties. The unit plan previously mentioned might solve the situation to some extent. For the present, however, the questions of recognition of the importance of hygiene in the school curriculum and of adequate time allotment for health teaching, remain ever present and seemingly insurmountable difficulties.

The use of Miss Gogle's *Workbook in Health for High School Girls* should prove an interesting experiment for any teacher of hygiene who will remember that the author is not offering a substitute for careful lesson planning, but is giving from the wealth of

her own experience, guideposts to the better understanding of the health problems of our high school girls.

—GERTRUDE W. SYME

Briefer Comment

REMEDIAL READING AT THE COLLEGE AND ADULT LEVELS, An Experimental Study. G. T. Buswell. Chicago: The University of Chicago, 1939. 72 p.

This study, by way of introduction, reviews the recent development of remedial reading research and techniques. The present monograph—Number Fifty in a series of Supplementary Education Monographs of the University of Chicago, published in conjunction with *The School Review* and *The Elementary School Journal*—discusses the reading problem in the light of practical implications and limitations which must be recognized when dealing with mature persons, and outlines experiments aimed at the possibility of improving a small group of factors basic to the reading process—vocalization, vocabulary, span of recognition, speed of recognition, and regularity of procedure. The specific objective was to discover in what manner and to what extent improvement could be effected in factors important to the reading process, and whether such improvement could be accomplished through remedial studies absorbing twenty one-hour periods, with proportionate further improvement after prolonged participation. It is emphasized that these college-age and adult students originally suffered no inability to comprehend, but a difficulty in reading with reasonable speed within the range of their individual experiences, and the gains recorded affected the reading process rather than comprehension scores. Median gains are shown, in percentages, of rapid, medium, and slow readers in span of recognition, reduction of regressive movements, speed of recognition, and rate of reading as measured by eye-movement records, and indicate a large degree of improvement.

Current Publications on Sight Conservation

Note.—The National Society for the Prevention of Blindness presents the most recent additions to its stock of publications. Except for the more expensive ones, single copies are sent free upon request. Unless otherwise specified, they are reprinted from THE SIGHT-SAVING REVIEW. New publications will be announced quarterly.

339. The School Ophthalmic Service, Austin Furniss. 12 p. 10 cts. Since the school set-up in England varies from the American, only those parts of this author's article which have an application to American conditions have been included in this extract.

340. A New Concept of Visual Performance in Industry, Hedwig S. Kuhn, M.D. 16 p. 10 cts. Points out the relation of eyesight to industrial efficiency and emphasizes the necessity of analyzing visual performance and its relation to the job.

341. The General Agency's Opportunity for Sight Conservation Among Older People, Margaret W. Wagner. 16 p. 10 cts. Emphasizes the necessity for better understanding by the ophthalmologist of the older patient and the part the case worker can play in establishing such an understanding.

342. Mental Health for Sight-Saving Class Pupils, Ingeborg Nyström. 16 p. 10 cts. Discusses the various factors in school and the home which can bring about a state of mental health in sight-saving

class pupils whose psychological problems may be somewhat intensified by their visual handicap.

343. History of My Glaucoma (Laqueur), Translation by Adolph Posner, M.D., and Mark J. Schoenberg, M.D. 16 p. 5 cts. A worthwhile addition to the literature which helps the ophthalmologist understand the patient's attitude towards glaucoma.

D139. Glaucoma—A Thief in the Night, Daniel B. Kerby, M.D. 4 p. (\$1.00 per C; \$7.50 per M.) A popular explanation of glaucoma. Reprinted from *Hygeia*, December, 1940.

D140. Standards for Outpatient Ophthalmic Departments, Conrad Berens, M.D., Ruth C. Williams, R.N., and Eleanor Brown Merrill. 8 p. 5 cts. Consists of Part II, "Standards for Nursing Service," and Part III, "Standards for Medical Social Service." To be used in conjunction with the Society's publication D127, "Standards for Out-Patient Service in Ophthalmology," by Conrad Berens, M.D. Reprinted from the *American Journal of Ophthalmology*, December, 1940.

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